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ABSTRACT

To understand the contributions of the National Assessment of Educational Progress (NAEP) toward solving the problems of literacy and equity, this report addresses two questions: (1) How can NAEP provide useful information concerning educational equity and standards of and levels of literacy, particularly with regard to linguistic and ethnic minorities; and (2) What kinds of data can be collected and analyses performed to chart changes in literacy over time and provide clues about the types of programs required for improving literacy? Divided into three parts, Part One explores differing conceptions of literacy, ways in which NAEP can address certain of them, ways in which NAEP can serve as a proving ground for literacy measures, and potential enhancements to the current NAEP model; Part Two explores NAEP's contribution to equity studies as a descriptive data base and a source of analytical inquiry; and Part Three examines trade-offs involved in potential enhancements of the current design. Appended are a discussion of trends for two kinds of literacy, a sampling of equity graphs, tables and statements, and NAEP publications in reading, writing and literature. (HOD)

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CONTRIBUTIONS OF THE NATIONAL ASSESSMENT
TO UNDERSTANDING THE PROBLEMS
OF LITERACY AND EQUITY

No. 12-IP-52

by Rexford Brown

Assisted by the Staff of the
National Assessment of Educational Progress

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TABLE OF CONTENTS

PREFACE.	1
INTRODUCTION	3
The Purpose of This Paper.	3
A Framework for Weighing Policy and Design Alternatives.	5
PART 1 Literacy	9
Introduction	9
Literacy Issues NAEP Could Address Without Major Design Changes	12
Literacy Issues NAEP Could Address Only With Major Design Changes	29
PART 2 Equity	32
Introduction	32
Trends in Equity and Equity Studies.	34
PART 3 New Directions for NAEP: the Trade Offs	45
APPENDIX A Trends for Two Kinds of Literacy	50
Literacy A	50
Literacy B	53
APPENDIX B A Sampling of Equity Graphs, Tables and Statements.	56
APPENDIX C National Assessment Publications in Reading, Writing and Literature	77
REFERENCES	108

LIST OF FIGURES AND TABLES

FIGURE 1. The Breadth/Depth Trade Off.	8
TABLE 1. NAEP Contributions to Literacy Measurement.	22
TABLE 2. Year 11 Reading/Literature Assessment Literacy Measures	28
TABLE 3. Background Variables Collected in the Year 11 Reading/Literature Assessment . . .	39
TABLE 4. Changes in the National Assessment and Potential Trade Offs	46
TABLE A-1. Group Differences From National Level of Science Performance by Cognitive Level.	52

PREFACE

The following paper is one of seven required by the National Institute of Education (NIE) grant to the Education Commission of the States for the administration of the National Assessment of Educational Progress (NAEP). The papers are intended to raise significant questions about NAEP functions and procedures in order to apprise the Assessment Policy Committee of its technical and administrative options as NAEP moves into a second decade of activity. According to the NIE Program Announcement, each paper should include "discussions about the significance of a national assessment of educational progress for (a) informing public opinion, (b) influencing educational and other social policies, (c) identifying specific educational and research needs and (d) contributing to the goal of improving education." Thus, the papers combine broad theoretical considerations with very concrete discussions of potential options and their trade offs. All the papers are suggestive, rather than definitive -- starting points for discussion rather than end points.

Two fundamental questions undergird these papers. First, if one were to design a national assessment program from scratch to serve the needs of the eighties and nineties, what would it look like? What theory would it draw upon? What constituents would it serve? How would it operate? And second, given that an assessment has been operating for 10 years, how do answers to these questions match the current NAEP? How could the current NAEP be changed to accommodate needs and technology unforeseen when it was begun in the 1960s? As these questions weave in and out of the discussions of various issues, it will become clear that the answers one gives will probably depend upon one's assumptions about such things as the way society, education and science work, as well as one's familiarity with the theory, politics, history and operation of the current National Assessment.

There are many ways to implement the 1979 legislation mandating a national assessment. Some are undoubtedly better than others in certain respects; all have both advantages and drawbacks, complicating even the

simplest comparisons among alternatives. In such a situation, it is imperative that advocates for various models of a national assessment adopt an open, interdisciplinary approach to rethinking the Assessment, listening carefully to each other and respecting professional differences of opinion.

Individuals charged with making policy decisions about NAEP -- members of the Assessment Policy Committee and members of the U.S. Congress -- will find that, in many instances, attempts to strengthen the Assessment in one regard will weaken it in some other regard. Given a certain level of funding, advances in some areas come at the expense of others. The National Assessment can neither be all things to all people nor a single, unchanging enterprise. It will always represent a combination of various tensions. The question for its future is not how do we eliminate those tensions? Rather it is: How do we harness those tensions creatively to keep the Assessment abreast of the times and continually relevant to America's long-term need for information about the status of education?

INTRODUCTION

The Purpose of This Paper

This paper addresses two questions raised in the National Institute of Education (NIE) Program Announcement for the National Assessment of Educational Progress (NAEP) grant: (1) "How can NAEP provide useful information concerning two central issues of American education -- educational equity, and standards and levels of literacy, particularly with regard to linguistic and ethnic minorities?" And (2), "What kinds of data can be collected and analyses performed to chart changes in literacy over time and provide clues about the types of programs required for improving literacy?"

The answers to the questions are easy to state in their most general form: There are many ways NAEP can provide useful information about equity and literacy, once the terms "useful," "equity" and "literacy" are defined; there are many kinds of data NAEP can collect and analyze in various ways to chart changes in literacy over time; and, without major changes in the current design of NAEP, there are few things NAEP can do to provide more than the most general clues about the effectiveness of particular literacy programs. Detailing and explaining these general answers in terms that generate discussion and clarify policy alternatives will be the major thrust of the paper.

Several assumptions undergird this discussion:

1. The Program Announcement questions conflate several kinds and aspects of measurement that must be sorted out and understood separately. Some people would view a national assessment primarily as a descriptive study, much like the U.S. census; some would view it primarily as an analytical study permitting diagnostic analyses, experiments and research similar to traditional educational research; some would view it primarily as an instrument for large-scale educational and social program evaluation. These visions are not fully compatible with one another, each having its own constituents, its

own body of theory and methodology, its own way of defining utility and its own history of successes and failures. Some combinations are, of course, possible, but a national assessment with limited funding is unlikely to satisfy everyone's needs or desires. The Assessment Policy Committee must weigh the many demands made upon NAEP for various kinds of information and decide which will be met at the expense of others. An even larger policy body must decide where a national assessment, once defined, fits into the national picture of research and information gathering.

2. Definitions of literacy have changed, historically. There are currently many definitions and there will doubtless be others in the future.
3. Equity can be defined in numerous ways, each of which has very different implications for measurement and for policy.
4. The groups believed to be victims of inequity have changed over time and will change in the future.
5. Largely because they are fluid concepts defined differently by different groups and at different times, both literacy and equity have eluded reliable long-term measurement.
6. The exact relationships between education, literacy and equity are obscured by complex interactions between such factors as the educational system, the economic system, class attitudes, racial attitudes and various sociopolitical ideologies and institutions.

These considerations must give pause to anyone contemplating long-term measurement of changes in these areas. For example, the first consideration suggests that if NAEP is designed primarily to be descriptive, it may be an inadequate or inappropriate tool for evaluation of such things as successful literacy programs. The second and third considerations suggest that the measuring instrument(s) be broad and flexible to accommodate a variety of dynamic definitions of both literacy and equity. The fourth suggests that the sample being assessed should include a diverse enough population to accommodate dynamic definitions of affected groups of

Americans. The fifth suggests a need for realistic expectations and imagination. And the sixth consideration suggests that the measurement should not be tied solely to traditionally defined educational institutions and programs. At the least, it should be designed to integrate well into sources of noneducational data such as census studies, labor statistics and the like.

In the pages that follow, each of these suggestions will be expanded upon with reference to the National Assessment of Educational Progress as it is presently defined and as it might be defined in the future to better meet needs for information about literacy and equity. Part 1 will explore differing conceptions of literacy, ways in which NAEP can address certain of them, ways in which NAEP can serve as a proving ground for literacy measures, and potential enhancements to the current NAEP model. Part 2 will explore NAEP's contribution to equity studies as a descriptive data base and a source of analytical inquiry. Part 3 will examine trade offs involved in potential enhancements of the current design.

A Framework for Weighing Policy and Design Alternatives

Three major tensions permeate all facets of the Assessment and influence all decisions about how it might be changed. The first is the tension between short-term and long-term interests: a decision to improve NAEP's utility in the short-term could impact adversely upon its long-term mission, and vice versa. The second is a tension between breadth/descriptiveness and depth/analytical capacity. And the third is the tension between the informational needs of diverse clients. Many things can be accomplished within the current NAEP framework that balance short-term/long-term, breadth/depth and audience interests. But, given limited resources, these polar considerations compete with one another. Discussion of NAEP's contributions to literacy and equity knowledge requires a general understanding of this competition and its consequences for the Assessment's design.

The short-term/long-term trade off is easy to understand. If we tailor an assessment to address today's issues on today's timetable, it may prove useless 10 years hence. Not only might the issues have changed but the methodology for gathering short-term data could be inappropriate for long-term measurement.

The audience trade off problem is equally clear. A "latent trait" approach to measuring reading performance might provide information useful to psychologists but incomprehensible or maddening to reading professionals interested in a different kind of data or a larger pool of NAEP reading items. Many ways of collapsing, structuring, scaling or weighting data represent clarification to some audiences but mystification to others. Since NAEP relies upon the voluntary cooperation of schools and the good will of various subject-matter professionals, associations and political groups, audience trade offs are not trivial considerations.

The breadth/depth, descriptive/analytical trade off deserves special comment because it bears especially on the issues of literacy and equity. As it is currently designed, the National Assessment represents a hybrid descriptive/analytical undertaking. On the descriptive side, breadth is the primary consideration. It employs a broad sample, a broad coverage of subject areas, a broad coverage of objectives within subject areas, many different kinds of measures, broad background variables and an assessment not only of knowledge but of skills and attitudes. Breadth requires discrete exercises, matrix sampling, national units of analysis and the logistics and time commitments associated with large-scale survey work. Descriptive data tend to be like aerial photographs, revealing features that cannot be seen on the ground; they invite disciplined observation, rumination, a thoughtful study of facts similar to the activity of the historian. Descriptive data suggest hypotheses and point to potentially fruitful areas of more focused research. They do not lend themselves to focused decision making; rather, they contribute to an atmosphere of beliefs, ideas and theories.

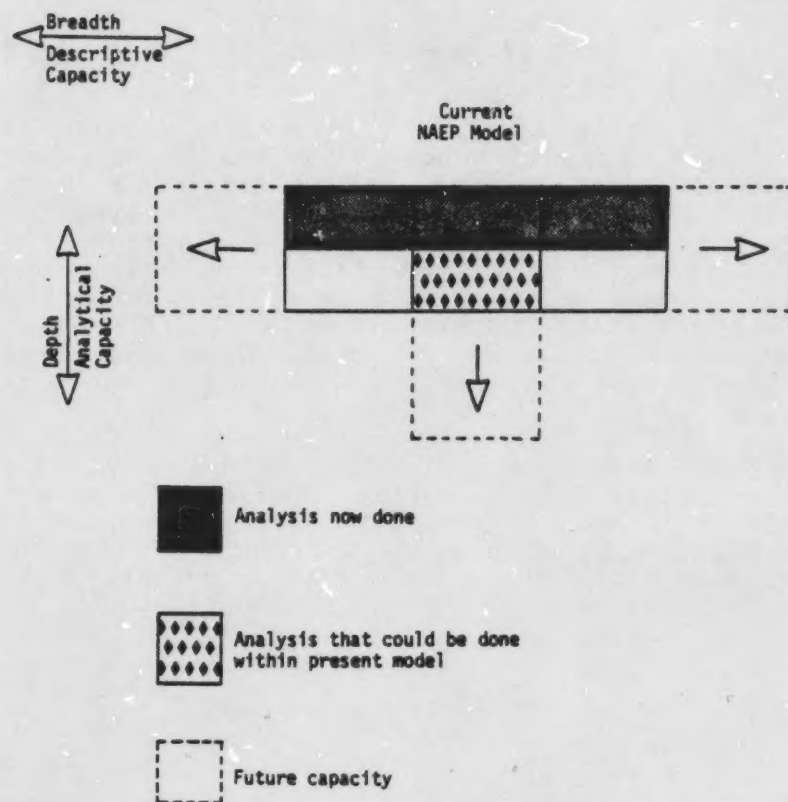
On the analytical side, depth is the primary consideration. The hunt for relationships between socio-educational factors and educational performance is best facilitated by a sample deep enough for fine-cell analysis and by precise curricular, resource and socioeconomic variables. Some of the features that make NAEP a useful descriptive study (e.g., its breadth, its matrix sample) can be nuisances to researchers who are interested in cross-sectional work, more easily collapsible data, policy timeliness or experimental control. Analytical data should bear on specific policy questions and should invite hypothesis testing and mathematical modeling. If NAEP's descriptive function is like taking

aerial photographs of a dam site, its analytical function is like conducting environmental impact studies. Both are critical to dam building but each is a distinct activity. To a certain degree, NAEP permits both functions.

As Figure 1 suggests, a certain amount of analytical work has always been done and there is more to be done within the current model. But there are limits to NAEP's analytical capacity; without massive funding, an increase in depth can only be purchased at the expense of breadth. One of the Assessment Policy Committee's major tasks in the next decade, then, will be to weigh the comparative contributions of NAEP's descriptive and analytical functions and to consider the long-term implications of a reorientation in one or the other directions.

If the suggestions raised throughout this paper are evaluated within a policy framework such as the one sketched here, the National Assessment can move into the eighties with a thorough knowledge of its capacity to respond to change and remain an important, unique source of information about American education.

FIGURE 1. The Breadth/Depth Trade Off



PART 1

LITERACY

Introduction

It is not surprising to find literacy and equity discussed in the same paper, since the former has long been thought to be a precondition for the latter. Ever since Horace Mann defined education as "the balance wheel of the social machinery" there have been those who felt that a truly equitable society would not evolve until all Americans shared a level of literacy enabling each to compete for the social goods and rewards he or she linked to the pursuit of happiness. As society has grown more technical, increasing numbers of Americans have sought more and more education in the belief that higher levels of literacy are needed to keep abreast of progress. Minorities have looked to education as a primary means of remedying social inequities and acquiring a fairer share of the social goods. Until recently, few Americans questioned the values of literacy for social and economic success or improving the life chances of minorities.

However, a number of developments have challenged the conventional wisdom and created uncertainties about the meaning of the word literacy, the level of literacy required to pass through public schooling or "survive" economically after graduation, and the precise relationship of literacy to various economic and social outcomes.

One development has been a profound disenchantment with the public schools and a widespread belief that, whatever literacy is, the schools are not inculcating enough of it into American youngsters. Declining test scores, particularly in verbal skills, reading and writing, have contributed to a fear that the present generation will be unequal to the demands an increasingly complicated, communications-oriented society will make upon it. At the same time, paradoxically, numerous social thinkers have begun to argue that literacy may not be as important as literate people would like to believe. Champions of electronic media, for instance, have argued

that traditional, print-oriented literacy skills will soon be passe, if they are not already (e.g., McLuhan, 1969). Bell Telephone advertisements suggest that letters are costly, inefficient means of doing business. Talking computers, information-processing machines and satellite hookups are predicted to free us from labor-some, "linear" ways of communicating, such as reading and writing. Social critics such as Christopher Lasch (1979) and Randall Collins (1979) suggest that advanced industrial society does not need a highly literate population because fewer and fewer jobs really require the careful thinking associated with reading and writing. The best evidence that they are not needed lies in the fact, Lasch asserts, that they are not being produced. Lasch traces, like Hofstadter (1963), Boorstein (1967) and others, a steady trend in American educational history away from standards of high literacy toward trivialized education for the "great army of incapables." Such a trend relegates literacy to narrower and narrower domains.

Less pessimistic critics, such as Williams (1958), suggest that literacy remains important but not as critical to the quality of life as literate people tend to believe. Other studies corroborate this by providing evidence that people overrate the literacy demands of jobs and underrate human ingenuity and resourcefulness. Jencks, for example, notes that students who leave high school with 8th grade reading skills are by no means unemployable: "At least in economic terms," he writes, "the cost of reading at 8th grade rather than 12th grade level is quite small" (Jencks, 1972, p. 110). A great many people seem to be functioning well who would be judged "functionally illiterate" by one test or another. In this connection, too, a point made by Daniel Boorstein (1967) may be worth keeping in mind. When America had a scarcity of legal and medical learning, the result was not a scarcity of lawyers and doctors, but the development, instead, of new kinds of lawyers and doctors, new concepts of law and medicine.

Another development challenging traditional notions about literacy is a barrage of widely publicized studies of the relationship between education and success showing that education has not markedly closed the gap between rich and poor Americans in this century (Blau and Duncan, 1978; Sewell, 1971; Jencks, 1972; Bowles and Gintis, 1976; Brittain, 1977; Dorn, 1979). As some of the tables in Appendix A reveal, there have been increases in educational attainment for all Americans, but these have not always or consistently led to decreases

in the income gap between haves and have nots. Thus, policy makers are confronted with some evidence that increased literacy translates into economic advantage and some evidence that it does not. And even if they choose to believe the former, they are also presented with contradictory evidence about how schools can "make a difference."

To add to the confusion, a revival of pluralist social theory has fostered the idea that the literacy needs of different groups of Americans differ with their values, languages, dialects, traditions and goals. A contextual, relativistic view of literacy, defining it as an ability to manipulate the symbolic code of one's culture or subculture, both broadens the concept beyond reading and writing and narrows it to the needs of a given individual in a given environment with given goals. Such an approach brings sophistication to the concept but frustrates policy making.

Each of these developments -- confusion about existing levels of literacy, the efficiency with which schools are promoting literacy, the true function of literacy in today's and tomorrow's societies, the relation between literacy and wealth or quality of life and the presence of many definitions of literacy for different groups and situations -- complicates a matter once viewed as relatively simple. Concurrent with these complications, however, there remains a persistent belief that we know more than enough about literacy to understand and promote it effectively. For most people literacy means ability to read and write at a level that facilitates smooth entry into adulthood and an ability to pursue happiness as an individual may choose to define it. At this general level we all feel we know what literacy is, we know the schools are primarily responsible for teaching it and we know that it is valuable both as means to social or economic ends or as an end in itself.

The situation a national assessment faces, then, is this: On the one hand, there is widespread belief that we know what literacy is, where people acquire it and how it is used; on the other hand, there is evidence that beyond a very general definition, literacy is difficult to define to everyone's satisfaction, literacy levels and standards are even more controversial than definitions, the concept of literacy is changing rapidly and there is much we do not know about how it is best taught and how it translates into particular psychologi-

cal, social or economic benefits. The political and practical implications of this mixture of knowledge and ignorance for anyone setting out to measure literacy over the long term should be obvious.

Literacy Issues NAEP Could Address Without Major Design Changes

One approach to identifying future roles for a national assessment is to determine what the present National Assessment can and cannot do. If policy makers decide it should do more than it does now or do something different, they can examine potential modifications. Here we are concerned with contributions to understanding the problem of literacy that NAEP, uniquely, can make within its present theoretical and practical constraints. The word uniquely must be stressed, for there is no point in redesigning NAEP to provide information now available from other sources. Many changes could be made within the present model to increase its contributions, but these will not be considered major. Major changes would involve reconceptualizing NAEP's role and redesigning the entire model; they will be considered in the next section.

The current National Assessment is well suited to address questions about the distribution of literacy in America and questions about efficient means of assessing and monitoring various literacies.

The Distribution of Literacies

Estimates of illiteracy or "functional illiteracy" in America range from 1% to 50% of the adult population (U.S. Census, 1969, 1977; Harmon, 1970; Harris, 1970; Vogt, 1973; Adult Performance Level Project, 1975; Functional Literacy ..., 1976; Murphy, 1973; Copperman, 1978; Fisher, 1978; Harmon and Hunter, 1979). The reason there is so much discrepancy in estimates is that different studies employ different definitions of literacy, different measuring instruments and different samples of the population. If one defines illiterates as people who are 14 years old or older but have completed fewer than five years of schooling, the figure is 2.8%. If one defines illiterates as people who cannot perform certain reading and writing tasks deemed "functional" by some group of "experts," the figure can be as high as 50%. And if one defines literacy as the ability to read demanding materials with good comprehension and write

clear prose suitable to particular audiences, most Americans may be in hot water. This Babel has impeded efforts to discover the true magnitude of literacy and illiteracy in America. Fortunately, however, the National Assessment has been broad enough to accommodate a number of definitions of literacy over the years. Should it continue to be defined broadly, it will accommodate a number of future definitions as well, permitting the kind of long-term measurement that has been elusive in the past. A brief review of some major definitions of literacy and NAEP design characteristics should serve to illustrate this particular strength of the Assessment.

Those who define literacy as a process see it as an intention to make meaning, an attempt to understand information, or a complex of largely unconscious psychological, cognitive and social activities -- most of which are beyond the reach of traditional measurement tools. Those who define it behaviorally list many levels:

1. The ability to read and write one's name.
2. The ability to read such materials as are critical to "survival" (i.e., legal documents, health and safety information, job notices, application forms) and to write sufficiently to fill out forms.
3. The ability to perform reading and writing tasks required for performing one's job satisfactorily.
4. The ability to read with comprehension a range of materials for a variety of purposes and to write a range of communications for a variety of purposes and audiences.
5. The ability to perform (3) and to perform fundamental mathematical computations and access resources such as libraries.
6. The ability to perform (4) and to act aggressively in behalf of one's rights and responsibilities as a citizen.
7. Mastery of fundamental processes of reading, writing, problem solving, computing, speaking and listening; and mastery of a core knowledge

base in the sciences and humanities; and mastery of basic tools for study -- sufficient to enable one to pursue any personal goals in this society.

Literacy (1) is usually thought of as too minimal for the modern world. Literacies (2) and (3) embrace a variety of "functional," "minimal" and "survival" definitions. Literacies (4) and (5) embrace likely outcomes of a high school education. Literacy (6) assumes an additional ingredient of activism. Literacy (7) would pass as the goal of a liberal education. Each of these definitions has a constituency with a social or educational agenda and a need for data. In addition to these, one hears of "scientific," "consumer," "economic," "historical" and "therapeutic" literacies. Presumably, one can be liberally educated and remain ignorant about such survival matters as energy, foreign affairs and inflation, or such quality-of-life matters as art, music and philosophy. As more and more Americans are educated out of old definitions of illiteracy, the society seems to create new definitions to worry about.

Faced with many definitions and levels of literacy and the promise of more to come, one who would assess it over the long run must have a flexible and inclusive instrument. This the Assessment is, by design. Some important relevant features:

1. Each assessment aims to gather information about a wide range of concerns. The reading assessment involves "survival" tasks, such as reading parking tickets, job notices, safety information and the like; but it also involves reading editorials, graphs, stories, biographies and even poems. The writing assessment requires skill in filling out forms and composing job application letters; but it also assesses abilities to compose expressive and persuasive essays, write various kinds of letters and revise first drafts. The mathematics assessment, as well, covers a range of skills from the simple to the complex. If, 20 years hence, mathematical literacy ("numeracy") is defined as an ability to perform algebraic tasks, the Assessment will have relevant data from the 1970s because it included algebra in its early assessments. Had the assessment been defined in terms of basics, it would have proven too narrow for long-term use.

Should a general literacy definition expand to include a smattering of skills across a number of subject areas, a broad NAEP working in at least 10 areas could accommodate the expansion. A more narrowly conceived NAEP -- limited to only reading, writing and mathematics -- would be less useful in the long run. In addition, a comprehensive NAEP permits interdisciplinary study of literacy -- i.e., reading and writing in the contexts of science, citizenship, work or the arts. Policy makers must carefully assess the long-term consequences of a narrowly conceived NAEP. While such a program may appear to be cheaper now, it could be extravagantly expensive in terms of the amount of data lost and the cost of chronic retooling to address short-term issues.

2. Any single assessment includes, as noted, easy, as well as difficult, materials. The Assessment is not tuned to a cutoff point to discriminate among individuals and rank order them. In addition to this advantage, every assessment includes (or should include) a variety of items, item formats, performance tasks and questionnaires. The writing assessment requires writing (many writing tests do not); the reading assessment includes short and long written responses as well as multiple-choice questions; the mathematics assessment also includes open-ended response tasks. All assessments gather information about attitudes as well as achievement levels. This diversity of approach has obvious advantages over the use of an instrument that relies exclusively upon one type of item or format or response mode. (See Appendix C for descriptions of NAEP materials in reading, writing and literature.)
3. The very process of defining and creating an assessment is conducive to long-term utility. The fewer the groups represented in the objectives- and exercise-development phases, the fewer the groups who will find their definition of literacy in the assessment. NAEP employs a consensus approach that includes the concerns of a wide range of groups. Besides its obvious relevance to long-term utility, this approach also serves periodically to bring into focus a national perspective on literacy

that is important in itself.

4. The Assessment samples three critical age groups. Ideally, it should sample adults as well, not only to put the results of the school-age youngsters into perspective, but to monitor changes in the rates at which adults tend to lose or increase their literacy skills. In addition, the Assessment samples many populations of special interest, such as blacks, Hispanos, out-of-school 17-year-olds and rural inhabitants -- all groups with higher than average rates of illiteracy. As the Assessment enhances its capacity to analyze these groups' achievements by other variables such as parental education, socioeconomic status or community and school characteristics, its ability to monitor trends for policy-relevant groups will increase.

To illustrate how these features contribute to literacy analysis, consider the following situation. Two groups of people have arrived at two different definitions of literacy and would like to know how their literacies are distributed among American 17-year-olds and how they are changing. Group A conceives of literacy as the mastery of some fundamental reading, writing, computation and thinking skills. The group defines reading literacy in terms of "functional," "literal," "real world," "everyday" reading tasks. It defines writing literacy in terms of knowledge of grammar and possession of low-level skills such as the ability to write a complete sentence or paragraph correctly, i.e., with correct spelling, capitalization and punctuation. It believes that high school graduates should be able to add, subtract, multiply and divide, as well as know basic mathematical facts. And, when defining literacy in terms of the cognitive skills involved in acquiring it, the group is interested in the lower cognitive levels of knowledge and comprehension.

Group B feels that higher-level skills are required for a meaningful concept of literacy. The group is more interested in "inferential" reading skills than in literal comprehension. It defines writing skill in terms of ability to master deep structure, rather than surface structure aspects of writing, and ability to address different audiences and situations with the appropriate strategies. It considers understanding and application of mathematics to have more long-term bearing on youngsters' lives than mastery of low-level skills. And,

when defining literacy in terms of the cognitive skills it requires, the group feels that application, analysis and synthesis are central to a literacy one can use fruitfully. How much could the groups learn from NAEP data? What improvements could be made to provide them with more or better data?

Literacy A. If group A browsed through NAEP data in reading, writing, mathematics, science, functional literacy, basic math (double sampled in 1975-76) and literal comprehension (triple sampled in 1974-75) looking at both aggregated and exercise-level data, here is what they would discover (see Appendix A for a more complete explanation):

1. The vast majority of America's 17-year-olds appear to have command of very basic reading, writing, computing and thinking skills.
2. Even when percentages are as high as 90% on basic tasks, that still leaves 10% of the 17-year-olds who may not be able to perform them, and that translates into hundreds of thousands of people -- not an insignificant number.
3. Percentages are much lower for minority groups and people in low-SES (socioeconomic) categories. As basic as Literacy A is, disproportionate numbers of people in these groups appear not to have achieved it.
4. The situation does not appear to be worsening. The percentage of 17-year-olds possessing Literacy A is not declining, and some groups are narrowing the gap between themselves and the nation.

Literacy B. The reading component of Literacy B is defined as possession of "higher-level" and "inferencing" skills. Although it sounds simple enough to separate those kinds of skills from the "lower-level" skills, it is not an easy matter. Theorists of reading comprehension can muddy interpretations of test results by arguing that both high- and low-level skills are probably at work in any act of comprehension. Students may do poorly on so-called literal comprehension items either because they lack some low-level skills (e.g., decoding) or because they lack some higher-level ones (e.g., forecasting). Students may perform less well on inferential tasks either because they lack some skills peculiar to inferencing or because they simply have not

mastered the lower skills yet. For purposes of this paper, we will assume that group B believes higher-level comprehension skill is more than the sum of a number of lower-level skills. That is, it involves some cognitive activities that are different from those engaged in low-level tasks. Consequently, a policy implication of changes in higher-level processing skills is that they cannot be improved simply by teaching the lower-level skills. Literacy B cannot be improved simply by teaching Literacy A.

We will make the same assumption for writing, mathematics, application skills, and analysis and synthesis skills. Literacy B includes some elements of Literacy A and is somewhat dependent upon it, but it also represents a different kind of activity fostered by different teaching and learning models.

Here is what group B is likely to find:

1. Although the majority of 17-year-olds has acquired Literacy B, a considerable minority -- perhaps as many as a third -- has not. This translates into perhaps a million youngsters about to enter the job market who lack or have inconsistently mastered skills affecting their quality of life and their opportunities.
2. The percentage of 17-year-olds in possession of Literacy B is declining.
3. The percentages are even lower for minorities and people in lower SES categories. And there are no signs that the gap between them and the national population is closing significantly.

Both groups A and B would be expected to define their literacies carefully; the analysis could be done using any set of exercises and variables the groups choose. They would be expected to view the results in the light of other educational and social information. The point worth stressing is that two concepts of literacy with different policy implications could be pursued because the assessments have been broad enough to support them. In addition, a group C might have defined literacy in terms of consumerism, and another might have defined it in relation to the fine arts. All could find complex -- which is to say more precise -- data that do not exist anywhere else. No other indices -- SAT scores, one-time studies, Gallup polls, etc. -- are half so rich in information.

However, as things currently stand, groups A and B would not find NAEP data easy to work with. The analyses of Literacies A and B described in Appendix B were done quickly by someone thoroughly familiar with NAEP reports. A more carefully constructed, responsible study would require a thorough acquaintance not only with reports but with the NAEP exercise pool, data access system and analysis procedures. Not only would groups A and B lack that knowledge, they would have difficulty acquiring it, since there is presently no central index of NAEP measures, reports and analyses. This is only one of several problems the groups would have.

Another problem is that Literacies A and B should ideally be defined in terms of specific items, not necessarily the same items NAEP aggregated to create its reports. Once a group has created such a definition, it is unlikely that the pool of items will match the pools used to calculate the results presented in published NAEP reports. Group A, for instance, may well find the Right to Read/NAEP definition of "functional" literacy different from its definition, requiring new calculations from new data. Steps are underway to facilitate this kind of analysis through improved data access systems. Another approach might be to establish special literacy packages that, though administered along with a full assessment, are scored, analyzed and reported separately.

Another difficulty groups are likely to have with NAEP data is that NAEP percentages are not referenced to criteria or desirable levels of performance. A mean of 55% may be cause for optimism or despair, depending upon how one feels about the importance of the exercises it includes. The exercises used for the functional literacy study (MAFL) represent an exception to this rule because they were first judged to be items all 17-year-olds should know and then referenced to the real performance of a group of excellent readers. In order to wrest policy implications from a single collection of NAEP items, one would have to establish criteria of some sort.

NAEP background variables may not always be the ones literacy analysts would use. Groups A and B would probably be interested in different sets of NAEP variables and would probably want finer breakdowns of some results than NAEP can provide with its present sample. In addition, they might well want information about minority groups about whom NAEP has no data, again because

of sample size.

These considerations suggest that within the present model, the National Assessment could have even greater utility for literacy studies if some of the following measures are taken:

1. Measures have already been taken to improve general access to raw NAEP data and materials. In addition, some effort to index all NAEP materials potentially relevant to literacy studies would be most useful. The bulk of the items would be in the areas of reading, writing and mathematics, but many would also be drawn from other assessment areas. Such an index could constitute a shopping list with which one could construct and explore a definition of literacy. Perhaps this is simply an expression of an overall need for a NAEP exercise classification system that cuts across subject areas to categorize exercises along many different dimensions.
2. Post hoc definitions of literacy present problems that do not exist if literacy (or literacies) are defined prior to assessment. Given sufficient resources, the Assessment could conduct a periodic literacy assessment consisting of reading, writing, computing and other exercises, all of which would be taken by the same student or adult. The present structure of the Assessment provides reading, writing and mathematics data for different years. They are not assessed together and no single student performs tasks in all three areas. A continuing assessment along the lines of the Adult Level Performance Project (1975), but avoiding some of its pitfalls (Fisher, 1978), could prove useful.
3. Consultants involved in the creation of objectives could be asked to designate certain sub-objectives as relevant to some notion(s) of literacy in their area. Each subject area could then have a specific literacy component that could be reported upon separately.
4. As it has with materials from the National Longitudinal Study, NAEP can include items, surveys or variables from other studies. This

would tighten the links between NAEP and other sources of information, broadening the context within which the data can be interpreted.

5. As resources permit, NAEP can experiment with alternative measures of literacy and help determine to what degree particular approaches are assessing literacy, thinking, world knowledge, intelligence, reading or all of these. NAEP can contribute to studies of the validity, appropriateness, utility and reliability of a number of instruments, scoring guides and procedures, along lines suggested in the next section.

NAEP as a Proving Ground for Literacy Measures

A common complaint against literacy measures is that few of them were designed to assess literacy per se and many of them are flawed (Nafziger, 1976; Fisher, 1978). If there is to be sustained research into literacy and continuing measurement of progress, policy makers need more sophisticated interlocking measures. The National Assessment is a natural proving ground for some of this new technology. Obviously it is not presently well suited for instruments that require experimental control, extensive one-to-one interviewing, intact classrooms, naturalistic nonschool settings or lengthy tasks. Nor is it a suitable vehicle for elaborate investigation of individuals or inquiries better conducted as small group studies. It is, however, a developer of large exercise pools used by a great many people. It has pioneered measurement approaches either too risky or expensive for commercial testers or researchers. When integrated into the larger network of literacy research, data gathering and testing, it can try out new technology while increasing its own accuracy and utility.

Table 1 lists 10 foci for measurement concerns in literacy and sketches NAEP's past and potential contributions. Although the ideas in the table cannot be discussed in detail here, several deserve brief comment.

TABLE 1. NAEP Contributions to Literacy Measurement

<u>Measurement Focus</u>	<u>NAEP Experience</u>	<u>Problems</u>	<u>Possible Actions</u>
1. General comprehension processes, linguistic abilities and writing skills of the fluent reader	• Very little	• Separation of reading and writing assessments • Research goal difficult to integrate into broader assessment	• Assess some reading and writing together • Analyze literature essay performance by reading "score" in same package • Define fluent readers and cross-tabulate on background factors • Design special package for study of fluent reader
2. Purposeful use of text in realistic situations	• Some. Skim/scan study, functional literacy study, study skills questions, Department of Labor items	• Creating realistic situations • Controlling for numerous variables	• Impossible to do well within usual assessment constraints. Requires tightly controlled experiment or observational study
3. Differential performance on reading subskills	• Extensive. First two reading assessments	• Theoretical problems with subskills and their relationships • Matrix sample hampers analyses • Definition of subskills controversial, so skills defined for one assessment are rejected at next assessment	• Meaningfulness and implications of results in doubt. NAEP's Read/Lit Advisory Committee could sponsor debate, request papers on this subject
4. Affective components of literacy	• Some. A few questions about attitudes toward reading, literature, writing	• Self report data • Test situation • Matrix sample and sample depth limit analysis	• Experiment with varieties of affective measures (e.g., semantic differentials, branching surveys, one-on-one interviews)

TABLE 1 -- *Continued*

<u>Measurement Focus</u>	<u>NAEP Experience</u>	<u>Problems</u>	<u>Possible Actions</u>
5. Writing skills beyond those assessable by multiple-choice tests	• Extensive	• Costs, logistics of open-ended scoring, complex analyses presently keep NAEP from fully analyzing its writing data	• Experimentation with various holistic, rubric, primary-trait measures and techniques for analyzing coherence, syntactic fluency, etc. • More validation of scoring procedures presently used • NAEP/NIE sponsored symposia on measurement of writing • Increase budget for writing sufficiently to allow full-sample scoring • Research studies on scoring of essays over time • Make NAEP's essay bank fully available to secondary researchers
6. Influence of motivation on reading and writing skills	• None	• Survey situation with no opportunity for feedback or prolonged observation. Must rely on respondents' assessment of their motivation • No teacher judgment about pupil motivation available	• Experimental background questions aimed at assessing motivation • Interviews using branching questions (as in Years 01 and 02)
7. Literacy in work/life settings	• None	• Test situation rules out observational data	• Experiment with background questions • Complement regular assessment with several coordinated case studies • Conduct a special work/literacy assessment

TABLE 1 -- *Continued*

<u>Measurement Focus</u>	<u>NAEP Experience</u>	<u>Problems</u>	<u>Possible Actions</u>
8. Specific effects of reading and writing and literacy theory upon assessment instruments	• Extensive, but undeveloped	• NAEP has developed reading assessments under different theoretical umbrellas. But did psycholinguistic theory lead to a different kind of reading instrument from which different kinds of inferences can be drawn? If so, in what specific ways? If not, why not? What inferences can properly be drawn about writing from primary-trait measures? What are primary traits, textually? What are the rules for generating primary-trait definitions and distinguishing "real" ones from "unreal"?	• Studies of the NAEP exercise development process and its effect upon the translation of theory into measurement instruments • Secondary research into psychometric differences between assessment tools developed from differing assumptions • Symposia on underlying principles of primary-trait definition, legitimization and measurement
9. New measures -- of attention; perception; memory; content expectations; awareness of incongruities; ability to predict, check and revise text meanings -- that are useful in a survey context	• Very little	• These factors in reading performance have received attention in research but have not been translated into test or assessment items. Some of the problems are obvious, but most of them are unknown	• Closer links between assessment developers and researchers • Symposia devoted to identifying these research findings with greatest promise for assessment technology • Systematic experimentation with new measures
10. Association of background characteristics and achievement in various literacies	• Extensive work tabulating and cross-tabulating background factors and achievement. Less experience performing analytical studies	• Sample depth and design rule out certain kinds of analysis • Background factors compete with achievement measures • Logistics/cost • Timeliness	• Revamped and enlarged sample • Expanded secondary research program • Education program for users

The most obvious problem Table 1 illustrates is that many of the questions people have about literacy are research questions first, measurement questions second and appropriate large-scale assessment questions third. The route from the question "What mental processes undergird fluent reading and writing?" to items designed to answer the question "How many nine-year-old fluent readers and writers show evidence of using mental processes A and B?" is a complicated route. Small-scale research must unearth some relatively strong hypotheses. Someone must design reliable and valid measures relating directly or in a chain-like way to the hypotheses. And someone else must find ways to fit questions originating in experimental research into a descriptive survey with a very different methodology, no experimental controls and numerous goals besides research. This is what the comment "Research goal difficult to integrate into broader assessment" means in the third column after focus #1.

In spite of difficulties, however, there is no reason to believe that a number of research questions cannot be converted to assessment questions or scoring schema as part of a long-term effort to improve the precision and accuracy of literacy measures. NAEP's writing assessment, for example, illustrates a very productive marriage of research interests and assessment technology. There is currently considerable theoretical and research interest in language cohesion and syntactic fluency. NAEP is drawing heavily upon that activity, applying to national samples schema developed on very small samples or never previously applied to any essay samples at all. Information from the third writing assessment will both clarify changes in writing and clarify the utility of new approaches to the scoring of open-ended questions.

Some comments about each measurement focus in Table 1 and the problems it raises:

Focus 1. NAEP's separation of reading and writing poses difficulties for finding out more about the characteristics of people fluent (or not) in both areas.

Focus 2. Certain literacy observations should be made in a realistic context rather than a test-like atmosphere. NAEP has assessed skimming and scanning skills and has asked students to imagine specific writing situations, but there are obvious

limits to the kinds of measures it can employ in this area as it is presently designed.

- Focus 3. Professional disagreement about literacy subskills or components affects research and assessment both. To a limited degree, NAEP should experiment with some subskill measures in each assessment and encourage methodological and theoretical research using NAEP data tapes. Of some interest here is the fact that although there is debate about phonics in the reading profession and debate about grammar in the writing field, NAEP assesses neither phonics nor knowledge of grammar. Instead, NAEP assessments aim to measure the overall skills (comprehension and writing) of which these are components.
- Focus 4. Studies of literacy that probe for motivational factors are somewhat possible within a large-scale assessment framework, but they are less than ideal. Students can be asked direct questions about how motivated they are to do certain things. The information could not be verified by observation or by teacher reports since NAEP does not assess intact classrooms. In the early years, NAEP used a one-on-one interview to gather supportive data. However, the technique was abandoned as too costly before it was perfected.
- Focus 5. Within its present constraints NAEP could ask students to detail their literacy needs in and out of school, but this approach has obvious drawbacks. Case studies, integrated into a full assessment, have been suggested as a possible means of enriching NAEP data.
- Focus 6. NAEP routinely asks questions about attitudes. This is an area where considerable experimentation and improvement should be possible.
- Focus 7. NAEP has experimented extensively with ways to milk data out of essays. The primary constraint in this area has been

insufficient money to analyze full samples. Consequently, NAEP has less data about the writing of blacks, Hispanics and other groups than it should have.

- Focus 8. Theoretical problems in the measurement of literacy are as important as the practical problems. NAEP needs theoretical studies of such critical issues as the construct validity of assessments developed under psycholinguistic theory or the underlying nature and independence of primary traits. NAEP's ideas need more exposure and scholarly debate.
- Focus 9. Symposia designed to tighten the linkage between researchers in literacy fields and assessment developers would benefit both groups.
- Focus 10. NAEP has extensive experience cross-tabulating background characteristics and achievement in various literacies. The analytic possibilities (as opposed to cross-tabulation) of NAEP data will be explored by staff and secondary researchers through the new NIE secondary research program. Although there are analytic opportunities yet to be taken advantage of, there are also limitations to what can be done with the current NAEP sample and the current approach to packaging and administering items.

Table 1 raises only a few of the considerations involved in using NAEP as a proving ground for measurement advances. The reader is invited to ponder and expand upon it. Table 2 displays some of the approaches to literacy measurement being employed in the current reading/literature assessment. Note that although there are multiple-choice questions for each of the areas of concern, there are also open-ended, short-answer and essay questions, as well as survey questions aimed at gathering data about such things as reader self-concept and attitudes.

TABLE 2. Year 11 Reading/Literature Assessment Literacy Measures

<u>Assessment Area</u>	<u>MC*</u>	<u>Exercise Format/Measurement Technique</u>			
		<u>MC* Using Accompanying Handouts or Visuals</u>	<u>OE,* Short- Answer or "Fill-In"</u>	<u>OE* Essay</u>	<u>Self- Report (Forced Choice)</u>
Functional tasks/skills (e.g., schedules, maps, phonebook, want ads, recipes, bank check application forms)	X	X	X		
Study skills (e.g., skim/scan, maps, charts, graphs, indexes, tables of content, dictionary pages, card catalogs, encyclopedias)	X	X	X		
Reading comprehension (using lexical/propositional/textual approach, literal/inferential approach, and explicit/implicit continuum approach)	X	X	X		
"Higher-level" cognitive/affective responses to written works (evaluate, analyze, generalize, draw inferences, emotional responses)	X		X	X	
Reading comprehension by genre/passage type (e.g., poetry, science, social science)	X	X	X		
Reading comprehension as related to student background information such as experiential, attitudinal, reader self-concept, achievement level and other demographic variables	X	X	X		X
Study skills performance as related to study skills background information	X	X			X

*MC means multiple-choice. OE means open-ended.

Literacy Issues NAEP Could Address Only With Major Design Changes

Table 1 brings to light a number of research questions about literacy that cannot be answered well or efficiently within the current NAEP framework. This raises the question of whether the Assessment should be reshaped to be a better research tool or whether researchers should lower their expectations about what can be done within a given assessment design. In a 1970 discussion of the disappointing results of large-scale program evaluations, David Cohen clearly recognizes the conflict between a census-like approach to evaluation and a research approach:

By definition a census measures stasis, it quantifies how things stand. If done well, it can reveal a good deal about the interconnection of social structure; if it recurs, it can throw much light on how things change. But no census can reveal much about change other than its patterns -- probing its causes and dynamics requires rather a different research orientation. And no census can produce qualitative data, especially on such complicated organizations as schools Using a census as the central evaluation device for large-scale multipurpose programs assumes that systematic experimentation is very nearly impossible within the large operating programs and can best be carried on by clearly distinguishing census from experimental functions. It would be foolish to ignore experimentation -- it should be increased -- but it would be illusory to try to carry it out within programs that have other purposes (Cohen, 1970, p. 120).

The same distinction is made by Mosteller and Moynihan (1972), Dyer (1972) and others: informational needs requiring different approaches cannot be met equally well within a single program. The policy question this fact raises is sketched in the Introduction but bears repeating here: Should the Assessment -- designed primarily to provide long-term, census-like data about deep structure trends -- be redesigned to permit more analytical studies, experimental research and targeted program evaluation? What are the trade offs involved?

There are certainly many questions about literacy that NAEP does not currently address. For instance, researchers have very little data about the precise level of literacy that is truly required for personal, civic and economic "survival" in this culture (Sticht, 1971; Hunter and Harmon, 1979). We are no longer even certain about the truism that literacy is related to thinking ability -- Scribner and Cole (1978) have cast doubt upon several versions of that belief. Indeed, the precise functions of literacy skills in different kinds and levels of society are poorly understood. At the moment, anthropological, ethnographic studies appear to hold most promise for clarifying these and similar matters. A census-like survey like NAEP could systematically gather attitudinal or descriptive data bearing on these issues by asking people how much reading and writing they do, how important these skills are, and so on; conceivably, the Assessment could even cross-validate ethnographic case studies by looking for similar patterns of literacy achievement in similar demographic units and populations. But these efforts would be supportive only and would not be compatible with the level of detail characteristic of ethnographic research.

The current Assessment is in an equally weak position to deal directly with fundamental questions about how literacy is acquired or how it should be taught. Research into the acquisition of reading and writing skills has served to generate as many questions as answers. Models of the reading and writing processes become increasingly elaborate and complex with each study of the psychological, cognitive, linguistic, semantic or social aspects of literacy activities. Clearly, the family, the society and the schools play important roles in the acquisition of literacy skills. But exactly what those roles are and how they interact for different individuals or groups we do not yet know. Research in such diverse areas as child development, cognitive psychology, egopsychology, rhetorical analysis, linguistics, semiotics and the sociology of education is most likely (if it can be brought together coherently) to clarify our understanding here. The National Assessment as presently conceived would play, at best, minor, indirect roles. For instance, it might spot areas or groups that display rapid changes in literacy skills. Follow-up studies of such situations could conceivably unearth important variables or contexts that elude detection by other means.

But clear information about how literacy is acquired or best taught does not come from cross-tabulated data. It comes from careful experimentation with painstakingly chosen and characterized samples of people in settings permitting the introduction of specific variables, control groups, follow-up studies, and so forth. This would require a very different NAEP.

PART 2

EQUITY

Introduction

History, a rich tradition of political philosophy and casual observation converge powerfully to suggest that arbitrary social inequities* arise as people create political and economic systems with which to balance diverse needs for power, status, food, happiness and the like; and that societies tend to perpetuate these unequal relationships by creating them anew from one generation to the next. Central to the process of perpetuating or modifying social inequities is a society's educational system. Thus, it is no surprise that battles over inequities in America are often fought on educational turf. But it should also be no surprise that such battles have seldom ended with unambiguous victories or defeats. Charged both with educating and sorting children, the American educational system contradicts itself, constantly betrays one or another of its constituents and can move only haltingly toward goals society endorses one year and retreats from the next.

*It is useful to distinguish the word inequality -- which suggests unequalness -- from inequity -- which suggests unfairness. The argument that all men are philosophically equal is often misunderstood to imply that all men should be physically, morally or intellectually identical; social programs attempting to insure that people will be treated equally are then seen as attempts to insure that people will be made equal with respect to all human attributes.

The word inequity removes that confusion by focusing upon a relation between individuals and a system of justice. To say that inequities exist is to say that certain groups or individuals are not receiving equal treatment under laws intended to apply equally to all citizens. The existence of inequalities is not necessarily a bad situation; the existence of inequities, however, almost always implies a miscarriage of justice.

Equity studies in American education should rest on a realistic model of this complicated system. Such a model must account for a multitude of declared and undeclared progressive and regressive pressures that define education's purposes unevenly at different times. It must account for education's role in socializing, sorting and stratifying young people; inculcating attitudes compatible with a competitive economic system and a history of some inequities; training them in very basic skills; implementing social "reforms" that other institutions do not wish to support; and -- most importantly -- educating children in ways that enhance their self-esteem, strengthen their abilities to think clearly, critically and creatively, and encourage them to transcend in their own ways any forces that might discourage their growth or unfairly limit their freedom. Within that last function, a realistic model must also account for the uniqueness of individual learning and teaching styles, the diversity of environments and opportunities for learning and teaching, the richness of classroom interactions and the difficulties of evaluating all this with instruments that are both reductive and vulnerable to the same blindnesses that permeate the system being studied.

Research based upon an inadequate theoretical model is likely to discover inequities that are trivial or overlook some that are critical; it is also likely to lead to simplistic conclusions about the effectiveness or ineffectiveness of schools in general, especially if its methods are too reductive or simplistic. Thus, it is incumbent upon policy makers in education that they have a synoptic view within which the place of each research study or evaluation is as clearly fixed as possible in relation to every other one. This is a tall order.

That no such view currently exists is obvious to anyone who ventures into the literature on equity. As with literacy, there are conflicting concepts involved, conflicting data bases and conflicting findings. It might be useful to review an assortment of equity tables, graphs and statements in order to understand concretely the milieu in which NAEP data exist and the problems NAEP faces in defining its most useful role in that milieu. Appendix B both establishes that milieu and documents the pervasiveness of some inequities in American society.

Trends in Equity and Equity Studies

The figures in Appendix B reveal much about both equity and equity studies. About equity, one learns, among other things, that:

- Considerable inequities in educational achievement, educational attainment, occupational attainment and income exist across American society, and important groups such as women, blacks, Hispanos, American Indians and the poor receive disproportionately low shares of educational and material wealth.
- Blacks and whites have different perceptions of educational opportunity, as do Northern and Southern blacks.
- Whites' attitudes toward blacks have improved in the last 20 years (NAEP citizenship data tend to support this).
- Lower percentages of blacks and Hispanos than whites finish high school and college, but the differences among the races in educational attainment are shrinking.
- Increased equalization of educational attainment does not appear to have led to increased equalization in occupational status or income. Although subgroups of women and minorities have made gains in professional fields and income, the overall positions of women and minorities relative to men and to whites have remained virtually the same.
- Educational attainment and income for individuals seem to relate more to social class and background and unknown factors than to such things as academic achievement or general intelligence.
- Indians', blacks' and Hispanos' achievements are below whites' achievement levels, on the average.
- Achievement differences between minorities and whites are considerably less for certain subgroups such as those minorities coming from homes in which at least one parent graduated from high school.

Various of these statements can be combined to make suggestive speculations. For instance, it appears as if whites' attitudes toward minorities might continue to improve over the long run. It appears as if improvements in minorities' educational attainment will eventually be reflected in improved achievement levels for their children. It appears as if improved educational achievement and attainment will not have much direct effect upon the relative occupational status and incomes of women and minorities. It appears as if schools, as they have been supported and run so far, will not do much to change nonschool inequities. But the data are only data, and if conditions change, one's interpretation of them might change as well.

This sprinkling of examples in Appendix B is also meant to suggest how diverse are the definitions of equity, the sources of data used to assess it and the methods of aggregating, analyzing and interpreting it. Equity has been defined in terms of access to school resources, opportunity to take advantage of resources, achievement in the basics, full educational achievement, educational attainment, access to the professions and a more equitable distribution of wealth. Equality of educational opportunity has been thought of as providing adequate school resources to enable children from different backgrounds to reach the same levels of academic achievement; providing individualized instruction enabling each child to fulfill his or her potential; removing racist and sexist attitudes and practices from the schools; providing compensatory programs for minority children; and all of the above. Data sources include simple attitudinal polls, school surveys, census and labor statistics, standardized tests and personal testimony. Methods of analysis run the gamut from fiction to simple descriptive surveys to multivariate path analyses. Each data source has its own measurement limitations and its own anchor in a particular sample and point in history. Each analytical approach has its own characteristic blind spots. What we understand about equity we understand by somehow connecting these disparate inquiries to arrive at a general impression.

The entire matter is further complicated by the fact that equality of educational opportunity is both an educational and a social goal. That is, equal educational programs aim not only at changing education but at changing society through education. Two consequences flow from this fact. The first is that equity studies are as political as they are scientific. Educational

information presented within a political context that threatens existing power and status relationships will be perceived and responded to politically, not rationally. The second consequence is that educational information alone will never be sufficient to judge the success of a social goal. It is quite possible for inequities to diminish while measurable educational outcomes for minorities remain at a constant level. It is equally possible for important inequities to persist even though measurable educational outcomes for minorities improve.

Unlike pure research driven by the curiosity of the researcher, equity research has been driven primarily by institutional policy needs and major social policy questions. When the courts defined equity in terms of equal educational opportunity, interest focused upon finding those school factors most responsible for differential academic performance so that their availability could be equalized. The question at hand dictated the methodology -- various kinds of factor analysis of school and nonschool inputs thought to bear on performance. Several major researchers (Coleman, 1966; Jencks, 1972; Bowles and Gintis, 1976) found the nonschool variables they selected contributed more to the achievement measure they selected than did the school resources they selected, spawning reanalyses of the data, new studies and a widespread misapprehension that "schools don't make a difference."

The trend in recent years has been either to try to show these researchers "wrong" by discovering significant school factors or to further clarify the nonschool, structural factors that contribute to inequality. In either case, researchers employ multivariate analyses liberally in order to create causal models or reveal unsuspected relationships with potential policy relevance.

At the same time, however, equity studies have drawn heavily upon descriptive data bases such as the U.S. census and the U.S. Department of Labor statistics. In On Equality of Educational Opportunity, Mosteller and Moynihan (1972) look to NAEP as a corrective to some of the flaws inherent in the "one shot" Coleman study. Not only could NAEP provide the trend data Coleman sorely needed, but it could be a clean source of group achievement data and it could offer a much broader range of measures than the limited standardized tests Coleman used. Henry Dyer, elsewhere in the same book, terms NAEP a useful "descriptive" study, which he distinguishes from analytical and experimental

studies aimed at establishing input/output relationships and evaluating interventions.

Thus, NAEP can contribute to our understanding of equity problems both as a source of descriptive data and as an opportunity for certain kinds of analysis.

NAEP's Contributions to Equity Studies as a Source of Descriptive Data

Certain groups may be receiving more hours of instruction than others, better books, preferential treatment, more encouragement to pursue certain career options or to aim for college. Inequities might show up in cognitive achievement but not in attitudes, in mathematics but not in music, in writing mechanics but not in prose expressiveness. Hispanos in certain communities, types of schools or socioeconomic situations may be performing certain kinds of tasks better than all Hispanos or other groups. We cannot predict where inequities might crop up or which ones will prove to be of critical importance to the next generation. It may appear today that inequities in reading comprehension achievement levels are of greatest importance, but 10 years from now the public may be more concerned about inequities in positive social attitudes. As long as the schools perform many different functions and teach a variety of subjects crucial both to later life employment and later life enjoyment, an ideal assessment should remain broad. Will the elimination of significant group differences in low-level reading skills be a worthwhile accomplishment if the price is greater group differences in understanding history, the arts or civic duty? A broad descriptive base offers the best hope of collecting the data needed in the future in order to address such issues.

The current Assessment describes the performance of important groups such as blacks, Hispanos and women. However, the sample is not large enough to include Orientals, "boat people" or any number of groups that currently meet with unequal treatment in the schools or may one day be policy relevant. Nor is NAEP's sample large enough to permit more precise characterizations of the groups it now reports on. When interest shifts from "blacks" to "blacks in the Southeast," NAEP can be helpful. But a further shift to "blacks in the Southeast whose parents attended college," or "suburban blacks in the West," strains NAEP's present capabilities. Equity studies are moving increasingly in this direction as the economic and human importance of making such distinc-

tions becomes more apparent.

In addition to broad coverage of subjects and groups, the Assessment must also aim for coverage of descriptive variables that both order the data in significant ways and facilitate analytical studies. Table 3 lists the background variables collected in the Year 11 reading/literature assessment. Most of the variables break into many categories. For instance, there are nine census regions, eight categories of television exposure and seven methods of identifying students for remedial reading programs. When all these discrete categories are added together, there are more than 100 school-level and more than 50 student-level variables for 17-year-olds. Thus, the results of any given reading exercise could conceivably be reported in terms of more than 150 groups of schools or people. In addition, any given exercise, exercise part or cluster of exercises could serve as a variable by which to examine results of any other exercise, exercise part or cluster. Since there are more than 450 items in the 17-year-old reading/literature assessment, there is a conceivable 600 x 600 variable matrix before one even begins to create variables by clustering. If NAEP did nothing more than tabulate these results over time it would still be performing a unique and invaluable descriptive service.

National Assessment's value as a rich descriptive data base is determined by the inclusiveness of its assessments and variables, the descriptiveness of its variables, the amount of access people have to the information and the amount of cross-tabulation its sample permits. Each factor deserves brief comment.

Inclusiveness. The more equity relevant groups and variables included in the Assessment battery, the more relevant NAEP will be to equity studies. However, some important trade offs must be kept in mind. An overly elaborate principal's questionnaire could affect either school participation or the accuracy of the data. A lengthened student background questionnaire cuts into assessment time because every minute spent answering background questions is a minute not spent answering assessment questions. Oversampling minority groups for increased precision can lead to declines in the precision of national estimates. And, of course, inclusiveness is not a virtue in itself; the trick is to include the right variables. Presumably, smaller-scale studies would be the source of new, potentially fruitful variables and principles of organization or tabulation.

TABLE 3. Background Variables Collected in the
Year 11 Reading/Literature Assessment

	<u>School Official</u>	<u>Data Source Student</u>	<u>ECS Staff</u>
<u>All ages</u>			
Region (4)			X
Census region (9)			X
Public/private control of school			X
Enrollment and average daily attendance	X		
Community size	X		X
Community type	X		X
School occupational profile	X		
School racial/ethnic mix	X		
Title I eligibility; number of students served	X		
Library size, accessibility	X		
Sources of reading material	X		
Instructional methods and materials	X		
Availability of in-service training	X		
Remedial reading program	X		
- Percent of students served			
- Type of personnel			
- Methods of student identification			
Reading enrichment classes	X		
Educational materials at home		X	
Parents' education level		X	
Television exposure		X	
Bilingual home		X	

TABLE 3 -- Continued

	<u>School Official</u>	<u>Data Source Student</u>	<u>ECS Staff</u>
Race			X
Sex	X		
Grade in school	X		
Birthdate (month,year)	X		
Kind of reader		X	
Easy/hard reading tasks		X	
Kindergarten attendance		X	
<u>Ages 13 and 17</u>			
Time spent on homework		X	
State of residence at age 9		X	
<u>Age 17 only</u>			
Required English instruction	X		
Curriculum offerings (language arts)	X		
Advanced placement, honors programs	X		
SES index (things in the home)		X	
Mobility index		X	
Family size, birth order		X	
Race		X	
Instructional methods and materials		X	
State of residence at age 13		X	

Descriptiveness. To the extent that any background questions are ambiguous, out of date, too abstract or in any other way remote from reality, the data they generate will be that much less useful. In addition, survey questions have well-known limitations that affect the range of inferences that can safely be drawn from them.

Descriptions of the world are judged according to their completeness and their sensitivity to important distinctions. There are many different kinds of blacks, Hispanos and Indians in many different socioeducational settings. The more distinctions NAEP can make about such groups, the more useful it will be. In the past, NAEP has cross-tabulated race by region, race by Title I eligibility of school, race by grade in school, race by percentage of white students in school, race by sex, race by parental education and a number of other variables. Currently, NAEP is exploring cross-tabulation by high- and low-performance groups. The more cross classification done, the more descriptive the data. The limit to cross classification is, of course, sample size and stratification.

Access to the Data. It is one thing to have millions of data points to organize and cross-tabulate, but it is another thing to absorb or work with them. Here a NAEP strength -- a wealth of descriptive data -- is also a weakness. There is too much to deal with, even after categories are collapsed and data are reduced to manageable, reportable proportions. Current efforts both to make raw data more accessible and to train others how to use it will help, but as it ages, NAEP will always need new technologies and programs for making the data maximally available in many forms.

Interpretation of Descriptive Data. All the NAEP data gathered so far could conceivably be tabulated and cross-tabulated according to all imaginable useful classifications and made available to every interested person in America. But the question of what such descriptive data mean can only be answered conditionally. NAEP data describe percentages of people who can do certain things under certain circumstances, and changes in those percentages. They answer a limited number of simple questions well, e.g., "Is reading achievement declining or improving?" But the data need to be placed in other contexts, linked to other kinds of data and interpreted in terms of other frames of reference to play their strongest role in shedding light on American education and culture. Interpreters of NAEP data must constantly be made aware of the difference between cross-tabulated

and experimental data. It is one thing to note that a school with program A produced higher performance than a school with program B; it is another thing to experimentally introduce program A into equivalent schools, control all relevant factors and conclude that the program is responsible for higher performance.

This intransitivity of NAEP descriptive data requires particular attitudes and approaches to data that are closer to those of the historian than the experimental scientist. The responsibility for clarification falls as heavily on the inquirer as it does on the data source. Rumination, disciplined observation and exploratory analysis can pay dividends with descriptive data, though they may seem "unscientific" to researchers who are accustomed to experimental studies, hypothesis testing and confirmatory analyses (see Cronbach, 1973; Mosteller and Tukey, 1977; Tukey, 1960, 1977; Burton, 1978).

NAEP's Contributions to Equity Studies as a Source of Analytical Data

Analytical studies involve searching for relationships between aspects of the educational system and its products. They are more decision-oriented (Cronbach, 1973; Dyer, 1972), more often tied to specific policy questions and more often dependent upon multivariate analyses than descriptive studies. NAEP's cross-tabulations have an analytical quality, but it is best to reserve the term for studies that aim primarily to establish degrees of relationship between components, or procedures (like balancing), designed to correct for disproportionalities of group characteristics among the groups NAEP samples.

Because fulfilling NAEP's descriptive mission economically calls for a stratified multistage cluster sample with unequal probabilities of selection, its complex (clustered, weighted) data base does not meet the random sampling assumptions underlying many statistical analyses. As a consequence, traditional analytical approaches to NAEP data are neither straightforward nor inexpensive. The specific problems this situation poses for certain analytical approaches are described in detail in Issue Paper #7. Here our attempt is only briefly to describe analytical studies that could enhance understanding of equity issues. They are of two types: correlational analyses and general linear model analyses.

Correlational analyses. Although NAEP's data set has a complicated, incomplete covariance structure, it is nonetheless possible to examine relationships of responses to various sets of exercises among and between various groups of people (e.g., women, blacks, any group sufficiently sampled). NAEP staff have conducted some limited principal component analyses and canonical correlative analyses (e.g., Knight and Johnson, 1978), but not with regard to any equity issues. Most recently, Jane Armstrong conducted a correlational study of an important equity issue (Armstrong, 1980). Using NAEP data in part, Armstrong analyzed the influence upon women's mathematics participation and performance of numerous factors such as sex-role stereotyping, career plans, attitudes toward mathematics, parental influence and socioeconomic status. However, Armstrong's study was a special effort employing a special sample, administration and questionnaire. It was not based upon NAEP data previously collected in the usual way.

General linear model analyses. Assessment results estimate relative levels of achievement for subpopulations such as blacks or people living in the Southeast. Interpretations of these group percentages, however, can be misleading in several ways. The label "Southeast" should not be taken to mean that performance is solely the result of the fact that respondents live in the Southeast. A large fraction of respondents in the Southeast happen to live in rural areas. Consequently, size-and-type-of-community effects may appear to be regional effects. Similarly, persons whose parents went beyond high school are more numerous in affluent communities than in the country as a whole, and persons whose parents had no high school are more numerous in rural communities. In this case, parental-education effects may be masquerading as size-and-type-of-community effects.

Confusion about group effects arises when the mixture of characteristics is unbalanced from one group to another. NAEP's weighted probability sample automatically preserves this imbalance in its percentage estimates. "Balancing" is a linear model technique that simultaneously adjusts a set of subgroup proportions to the national average (Tukey, 1970; Larson et al, 1973; Larson and Searls, 1974). When results for blacks are balanced to account for the fact that disproportionate numbers of them reside in the Southeast, live in inner-city environments and are in less than modal grades, the black deficit is usually cut in half. That is, if blacks' unbalanced difference from the national level of

performance is 16 points, the balanced percentage is usually around 8 points. This is just another way of saying that roughly half the blacks' difference can be accounted for by the rather gross measures of such factors included in the assessment as residence, living patterns and home environment.

The National Assessment should report more balanced results than it now does, but two considerations should be kept in mind. First, balanced results are hard to interpret. NAEP does not claim that such variables as "low metro" are very precise, but when it "subtracts" low metro from blacks' performance it gives the appearance that it has accounted for all of the detrimental effects of living in an impoverished urban environment. When several of these factors are accounted for and black/whites' differences remain, what inferences can be drawn? That the residual difference is school caused? That it represents differing attitudes toward tests? Balancing clarifies some aspects of the equity problem but it raises new questions at the same time.

The second consideration is that while balancing dramatizes the complex interactions that influence differential academic performance, it does not reflect reality. Balancing asks what if blacks appear in NAEP's variable categories in the same proportion that a national population does? But blacks do not appear in these proportions. Nor is it necessarily true or even desirable that they must do so.

Balancing is one example of a multiple regression analysis technique applicable to the NAEP data base. There are others. Mullis (1979) adopted Coleman's (1975) regression and path analysis procedures to citizenship, social studies and mathematics data collected in 1975-76 to estimate relative school effects for 17-year-olds. Noe (1978) employed a similar approach to study the relationship between certain attitudes toward science and performance on certain science assessment items. No equity-related studies of a similar kind have yet been undertaken, but there is no reason why they cannot be, whenever sample size permits. Representation of equity groups in the NAEP data remains one of the most critical factors that limit analytical work of this kind.

PART 3

NEW DIRECTIONS FOR NAEP: THE TRADE OFFS

The following table (Table 4) lists suggestions for changes in NAEP to improve its contributions to our understanding of the problems of literacy and equity. Most of the suggestions have been discussed in the preceding pages; others are mentioned to stimulate further thought. The table should be seen more as an illustration of the kinds of thinking that have to be done than as a definitive statement about probable consequences of changes in the Assessment.

TABLE 4. Changes in the National Assessment and Potential Trade Offs

<u>Suggested Change</u>	<u>Possible Within Present Model?</u>	<u>Changes in Model or Additions -- Cost</u>	<u>Trade Offs</u>	<u>Problems</u>
1. Closer linkage to ethnographic studies of literacy	Marginally	• More background variables -- low cost • Add interviews -- medium cost • Add case studies, observation -- high cost	• Background variables cut down exercise time • Interviews cut down exercise time, increase scoring costs, scoring time • Observational studies change character of NAEP, could influence participation rate, image, etc.	• Coordination • Turn around time • Integration of very different kinds of information • Conceptual incongruity between NAEP and ethnography could lead to less coherent NAEP
2. Analysis of causes of illiteracy and improvements in literacy	No	• Make NAEP more like experimental study -- lower cost (if descriptive mission abandoned) • Collect school, classroom and family data not collectable with current constraints -- medium cost	• Radical change in function would radically alter audience interest and use • Probably violates legislative intent	• New staff, new orientation, new politics • Massive technical problems, inference problems, etc. • Probably cannot be done well, since much influence comes from outside the schools
3. Program evaluation	Crudely	• Gather more exact program information -- medium cost • Change sampling procedure for schools and students within schools -- high cost	• NAEP becomes more controversial and subject to pressure-group tactics • Loss of some long-term relevance, since programs change and new sample could be less useful for long term • Could impact participation rate adversely • Without extra funding, cuts into assessment time and resources	• Many of the same problems Title I evaluations faced • Precision, validity of data; relevance of results to any particular school could be questionable

TABLE 4 -- Continued

<u>Suggested Change</u>	<u>Possible Within Present Model?</u>	<u>Changes in Model or Additions -- Cost</u>	<u>Trade Offs</u>	<u>Problems</u>
4. Create literacy assessment	Yes	• Use existing reading, math, literature, writing, consumer skills, cit/soc exercises -- low cost • Expand assessment time so that one student could take all exercises -- low cost • Add adult assessment -- medium cost • Create new area with its own objectives, items, etc. -- low cost if it replaces current area, high cost if it is additional	• Lose those items for other assessments or change release policy • Lose advantages of matrix sample • Probably lose some other subject(s) (e.g., music and art) • Expanding these could create school participation problems	• About the same problems encountered in creating any area
5. Survey adult literacy	Yes	• \$500,000 for limited assessment	• Without extra funding it would drain resources from other age levels	• None that have not been dealt with in the past
6. Survey literacy among American Indians and other groups	Marginally	• Larger sample or oversampling of groups -- medium-high cost	• With limited resources, trade offs include lowering number of packages losing national precision • Main trade off of larger sample is money • Need new background variables more relevant to Indian education	• None that have not been dealt with in the past

TABLE 4 -- *Continued*

<u>Suggested Change</u>	<u>Possible Within Present Model?</u>	<u>Changes in Model or Additions -- Cost</u>	<u>Trade Offs</u>	<u>Problems</u>
7. Exercises cross-indexed to facilitate "roll your own" literary studies	Yes	• See p. 20 -- cost low	• New programming • Potential abuse (e.g., creation of competency tests from items not created for competency testing)	• Defining classification • Attempts to do this in the past have encountered thorny conceptual and logistical problems in describing exercises and making them readily available
8. Experiment with new literacy measures	See pp. 22-24			
9. Broaden NAEP coverage	Yes	• Add subject areas to reflect diversity of school offerings -- medium to high cost • Perform assessments for other groups at their expense	• Breadth could be purchased at some expenses to depth • Broader audience, expanded relevance	• Money
10. Expand cross classification, cross-tabulation of NAEP variables and results in order to report more fully on equality of educational outcomes and changes for policy-relevant groups	Yes	• Some new programming -- low cost	• Lengthens analysis and reporting time • Competes for mainline and research time	• None that have not been dealt with in the past
11. Investigate equality of access to school resources, equality of opportunity to take advantage of resources	Somewhat	• Requires much more thorough description of school resources, definition of access, qualitative information in addition to quantitative -- high cost	• Would compromise amount of time dedicated to gathering performance data unless new resources added	• Many of the problems that arose in Title I and Follow Through Studies -- e.g., multiple interpretation of access, multiple definitions of resources, the politics of a decentralized educational system

TABLE 4 -- *Continued*

<u>Suggested Change</u>	<u>Possible Within Present Model?</u>	<u>Changes in Model or Additions -- Cost</u>	<u>Trade Offs</u>	<u>Problems</u>
12. Investigate effects of compensatory education programs	No	Requires experimental approach, different sample. Could be done as a special probe at additional cost, but best done as small-scale study. NAEP could add background variables relating to compensatory education	Unless organized and financed separately, would compromise descriptive data gathering	Same as above
13. Investigate changes in racist, sexist barriers to equal opportunity and effects upon achievement	No	Requires identification of racist, sexist barriers detectable with quantitative measures or special observational probe	Even if done well would be controversial, possibly affecting voluntary cooperation rate and integrity of the sample	Substantial measurement and political problems
14. Describe changes in achievement in terms of high-, medium- and low-achievement groups to see if they are performing differently	Yes	No change -- little cost	Takes spotlight off minority groups and turns it instead upon achievement groups	None

APPENDIX A

TRENDS FOR TWO KINDS OF LITERACY

Following is a discussion of the two literacies defined in Part 1.

Literacy A

1. Once some problems accessing NAEP information have been dealt with, group A will find that over 90% of the nation's 17-year-olds can perform "functional" reading tasks (Functional Literacy . . ., 1976). Exercises assessing "literal" comprehension skills in the 1970 and 1975 reading assessments indicate that the vast majority of teenagers can read at this level and the percentage is not declining as some education critics have claimed (Reading Change, 1970-75: Summary Volume, 1978). Students from rural areas and small towns are improving as are those in the East South Central region (Alabama, Kentucky, Mississippi and Tennessee). Southeastern students in predominantly black schools appear to do worse than those in schools with 20 to 90% white populations. In all studies, girls perform better than boys; students from homes in which a parent had post high school education perform better than those from homes in which neither parent attended high school; students from high-SES districts performed better than those from low-SES districts; and 17-year-olds in the 10th grade performed considerably behind (13 points) the age group as a whole.

2. National Assessment has not tested knowledge of grammar and grammatical facts, so group A may be disappointed on that score. It may also find NAEP's preference for descriptive, rather than prescriptive, treatment of writing difficult to adjust to. "We're not interested in the characteristics of the essays," they are likely to say. "We just want to know how good they are." Quality is, in fact, defined for many writing assignments, but the job of aggregating all the percentages from task to task is left to the reader, and it can be bewildering. Only 17% of the teenagers appear able to write a satisfactory job application, but 54%

can write a competent essay about a picture. What does this mean?

NAEP's report, Writing Mechanics (1972), provides some data about Literacy A. The 17-year-olds made between two and three punctuation errors per 100 words; about one sentence fragment, run-on sentence and agreement error per essay; and about two misspellings per 100 words. The error rates were highest, of course, for the worst writers, inflating these figures. Two-thirds of the average and good writers had no capitalization errors, three-fourths had no sentence fragments or run-on sentences and over 90% made no paragraphing errors. These are not particularly alarming figures. And, although the sample essays included in the report do not inspire excitement about basic writing ability, neither do they lend support to the belief that a great many 17-year-olds cannot write a simple sentence. The telephone-book sized report Selected Essays and Letters (1972), a collection of almost 10,000 writing samples from the first assessment, presents writing information in the most concrete way possible. Since it provides data about sex, race, community and parental education for each essay, it permits any number of analyses. Group A would probably feel that the majority of teenagers is doing relatively well with mechanics, but it would probably be stunned by the problems that appear in essays judged to be of low quality (the bottom third of the distribution). Much work to be done here.

Writing Mechanics, 1969-74 (1975) does not directly address the concerns of group A as much as the earlier writing mechanics report does. It does, however, compare writing from two different assessments and finds the more recent writing lower in quality. Surface structure characteristics of the writing do not appear to have contributed much to the decline, so it is safe to say that the relative occurrence of misspellings and errors of punctuation, capitalization, word choice and the like remains about the same. What the results did suggest would be of greater interest to group B, for there are indications that the decline in quality was due to deep structure problems such as incoherence, the amount of modification taking place and (a problem identified in the earlier report) understanding of the conventions of written English.

3. Math Fundamentals, a 1975 report on the first mathematics assessment, establishes that well over 90% of the 17-year-olds could perform simple addition and about 85-90% could perform simple subtraction. Between

80 and 90% could multiply and divide, although the percentage usually dropped when decimals were involved. Simple computation with fractions and integers proved more difficult, but percentages were in the 70-80% range, nevertheless. Whenever computation involved translation (e.g., word problems), the results were lower for different groups.

The recently reported results from the second mathematics assessment do not reveal a marked decline in these fundamentals. Although there was an overall 5% decline in skills, most of it was caused by declines in algebraic and fraction computations, not in simple addition, subtraction, multiplication and division. Literacy A may not be advancing, but neither is it losing ground. There are still marked group differences worthy of attention, however. Although younger blacks seem to be closing the gap somewhat, the 17-year-olds remain considerably below the nation.

4. Bloom's Taxonomy of Educational Objectives ... Cognitive Domain (1974) distinguishes several levels of cognitive ability, ranging from knowledge (the lowest) to comprehension, application, analysis, synthesis and evaluation (the highest). When science questions were classified according to the cognitive abilities required to answer them, the result is the pattern of group differences shown in Table A-1.

TABLE A-1. Group Differences From National Level
of Science Performance by Cognitive Level

	<u>Knowledge</u>	<u>Comprehension</u>	<u>Application</u>	<u>Analysis and Synthesis</u>
Whites	+ 2.2	+ 2.4	+ 2.8	+ 3.3
Blacks	-13.4	-14.4	-17.0	-19.6
Hispanos	- 9.5	-10.2	-11.5	-12.3
No high school	- 7.4	- 7.3	- 8.7	- 9.4
Post high school	+ 4.6	+ 4.9	+ 5.3	+ 5.7
Low metro	-11.8	-11.3	-13.0	-14.7
High metro	+ 4.6	+ 4.4	+ 4.2	+ 5.5
Big city	- 5.1	- 5.4	- 6.2	- 6.8

If we presume that Literacy A is defined more in terms of knowledge and comprehension-level skills (with some application), then there are considerable differences at even the most basic level. More worrisome to those interested in Literacy A, however, is that differences become greater as one moves from left to right, i.e., up the skill ladder. It becomes clear that even Literacy A has some components that are more troublesome than others. And while watching the gap between the "haves" and the "have nots" widen with the difficulty of the task, some Literacy A proponents may take a greater interest in Literacy B, where differences appear to be most extreme.

Literacy B

1. The results for higher-level comprehension skills are lower than they are for lower-level skills. John Mellon (1975) transformed each NAEP inference item into a declarative statement the students had to complete by choosing the correct answer. In doing so, he found that the more words per T-unit (main clause or sentence) there were in a statement, the lower the percentages of success on the inference items. For instance, the average percent correct for statements with 13 words per T-unit was 91.6%; 14.3 words per T-unit, 79.4%; and 17.3 words per T-unit, 56.2%. Thus, inference results are confounded with syntactic complexity, vocabulary and other aspects of the question asked, and group B would be well advised to define its literacy more precisely. Fewer 17-year-olds show skill in comprehending reading materials that require a certain amount of inferencing -- for example, recognizing that an author is making contradictory claims or inferring from a television schedule that if one is watching program A he cannot be watching program B. Since many "functional" reading materials -- warranties, guarantees, insurance policies, loan agreements, etc. -- require complicated inferences, these lower percentages bear directly on the practical effects of illiteracy.

As was the case with Literacy A, advantaged groups tend to perform better than disadvantaged. But for Literacy B, the gaps are even wider. The black/whites' difference for all reading exercises, for instance, is 14 points; for the inference exercises, it is 24 points. The gaps between the no-high-school and post-high-school groups and the low-metro and high-metro groups are also larger.

Although, as noted earlier, low-level reading skills do not appear to be declining, higher-level skills are. The decline of 17-year-olds' reading performance between 1970 and 1975 is almost entirely attributable to lower percentages of success on inferential comprehension items. This is some support for the contention that the two literacies are different in character and probably require different policies and strategies.

2. Group B defines writing literacy in terms of ability to master basic syntactic and rhetorical conventions. As a minimum the group would expect 17-year-olds to be able to write coherently in a number of different situations (e.g., school, work, family) and a number of different modes (letter to the editor, letter to a friend, simple book report, interoffice memo, etc.).

The first writing mechanics study (1972) seemed to show that most papers written by 17-year-olds showed "mastery of basics." Nevertheless, there was a considerable difference between the "middle quality" and the "high quality" papers, consisting primarily in the better writers' apparent ability to choose among a number of various constructions instead of being limited to few or no choices.

The second writing assessment suggested that the factors that contributed most to the lower quality of 17-year-olds' writing were not surface structure features such as spelling, capitalization, and the like. Rather, the decline was most probably caused by increases in the number of run-on sentences and awkward constructions, coupled with decreases in the use of complex sentences, modification and conventions critical to maintaining coherence. The second assessment also showed considerable variation in the percentages of students able to write for different purposes and audiences. This suggests that a good many teenagers probably do not have flexible writing skills that can be varied as situations dictate.

As in reading, then, Literacy B in writing is declining. It is important to note that the decline is entirely accounted for by middle- and low-quality writers. There appear to be as many excellent writers as there used to be. Thus, the declines in Literacy B are not declines in advance or esoteric skills, useful only to elite writers. They are declines that affect the average and poor writers who constitute the vast major-

ity.

3. Recent Congressional testimony has succinctly summed up the trends in mathematics. Edward Esty: "One, most children can do simple whole number computations accurately; two, there are weaknesses in more difficult computations with fractions, decimals and percents; three, children have more difficulty in applying computational skills than they do with the skills themselves; and four, there are weaknesses in higher-level skills" (Subcommittee, 1979). Shirley Hill: "The inescapable conclusion to be derived from the results of the second national assessment of mathematics is that there is a critical need for attention to higher-order cognitive skills. Reasoning, analyzing, estimating, selecting appropriate information and inferring -- these are basic skills that are essential to the effective application of mathematics" (Subcommittee, 1979).

4. The third science assessment indicated that 17-year-olds' level of performance continues to decline. However, it is declining fastest in the area of physical science. The majority of questions asked about physical science involve application, analysis, synthesis and evaluation skills. In biology, which showed a slight slowing of the drop, the majority of questions involve knowledge and comprehension. Thus, there are grounds for suspecting that the science results reflect the same decline in Literacy B skills that the other assessments show. And, as Table A-1 reveals, group differences are greatest at these higher levels.

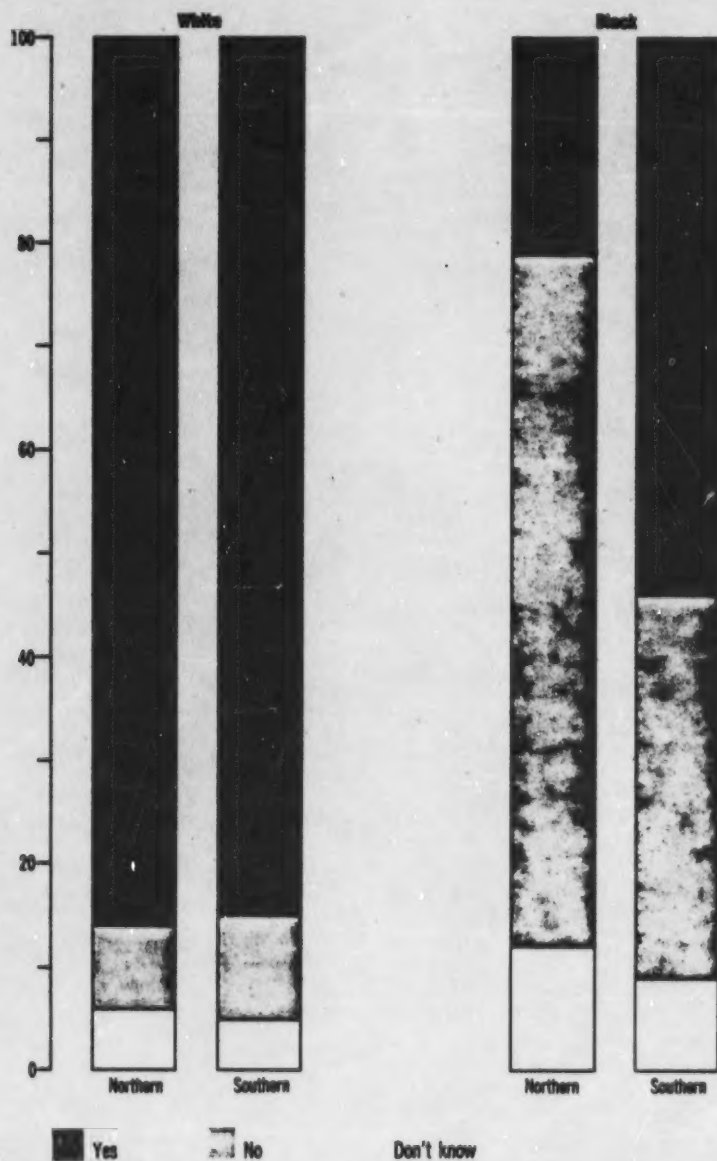
APPENDIX B

**A SAMPLING OF EQUITY
GRAPHS, TABLES AND STATEMENTS**

1.

"In your opinion, do black children and other minorities in this community have the same educational opportunities as white children?"

Percentage distribution of responses



From: The Condition of Education, 1979 Edition, p. 219.

2.

White Attitudes toward Blacks

Statement	Percentage Agreeing		
	1963	1971	1978
Blacks have less ambition than whites	66	52	49
Blacks are more violent than whites	NA	36	34
Blacks want to live off the handout	41	39	36
Blacks have less native intelligence	39	37	25
Blacks breed crime	35	27	29
Blacks care less for the family than whites	31	26	18
Blacks are inferior to white people	31	22	15

Source: The National Conference of Christians and Jews, "A Study of Attitudes toward Racial and Religious Minorities and toward Women," November 1978, p. 16. Conducted by Louis Harris and Associates.

From: Dorn, E. Rules and Racial Equality, p. 51.

3.

Percentage of Population 25 to 34 Years Old Who Completed 4 Years of College or More, by Race and Sex

Year	Total	Black		Total	White	
		Male	Female		Male	Female
1960	4.1	4.1	4.0	11.9	15.8	8.3
1966	5.7	5.2	6.1	14.6	18.9	10.4
1970	6.1	5.8	6.4	16.6	20.9	12.1
1974	8.1	8.8	7.5	21.0	24.9	17.2

Source: CPR, P-23, no. 54, table 68.

From: Dorn, E. Rules and Racial Equality, p. 40.

4.

Years of Regular Schooling Completed by Different Population Groups

Group	Mean	Standard Deviation	Coefficient of Variation	(Median)
All Individuals				
Born: 1895-1904	8.90	3.76	0.42	(8.8)
1905-1914	9.94	3.63	0.37	(10.5)
1915-1924	10.86	3.30	0.30	(12.2)
1925-1934	11.47	3.21	0.28	(12.3)
1935-1939	11.90	2.92	0.25	(12.5)
1940-1944	12.20	2.80	0.23	(12.6)
Males				
Born: 1895-1904	8.77	3.89	0.44	(8.7)
1940-1944	12.39	3.00	0.24	(12.6)
Females				
Born: 1895-1904	8.96	3.65	0.41	(8.9)
1940-1944	11.99	2.57	0.21	(12.5)
Whites				
Born: 1895-1904	9.18	3.65	0.40	(8.9)
1940-1944	12.31	2.77	0.22	(12.6)
Blacks				
Born: 1895-1904	5.91	3.76	0.64	(5.1)
1940-1944	11.10	2.77	0.25	(12.2)

Source: Rows 1-14 were derived by Norma Raines for CEPR from U.S. Bureau of the Census "Educational Attainment in 1969," Table 1. In calculating means and standard deviations individuals reported as having 0 to 4 years of school were allocated as follows: 25 percent to 0 years, 25 percent to 1.5 years, 50 percent to 3.5 years. Individuals reporting 5 or more years of college were allocated as follows: 50 percent to 17 years, 25 percent to 18 years, 25 percent to 19 years. Preschooling is excluded. Beverly Duncan obtained fractionally lower means using slightly different assumptions (see her "Trends in the Output and Distribution of Schooling").

From: Jencks, C. et al. Inequality: A Reassessment of the Effects of Family and Schooling in America, p. 21.

5.

Percent of degrees awarded to females, by level of degree: School years ending 1965, 1970, and 1977

Level of degree	1965	1970	1977
	Percent		
Bachelor's.....	42.4	43.1	46.1
Master's.....	33.8	39.7	47.1
Doctor's.....	10.8	13.3	24.3
First-professional...	3.5	5.0	18.7

SOURCE: U.S. Department of Health, Education, and Welfare, National Center for Education Statistics, *Projections of Education Statistics to 1986-87*, 1978.

From: The Condition of Education, 1979 Edition, p. 230.

6.

Percent of persons 25 years old and over completing at least 4 years of high school, by age and racial/ethnic group: 1977

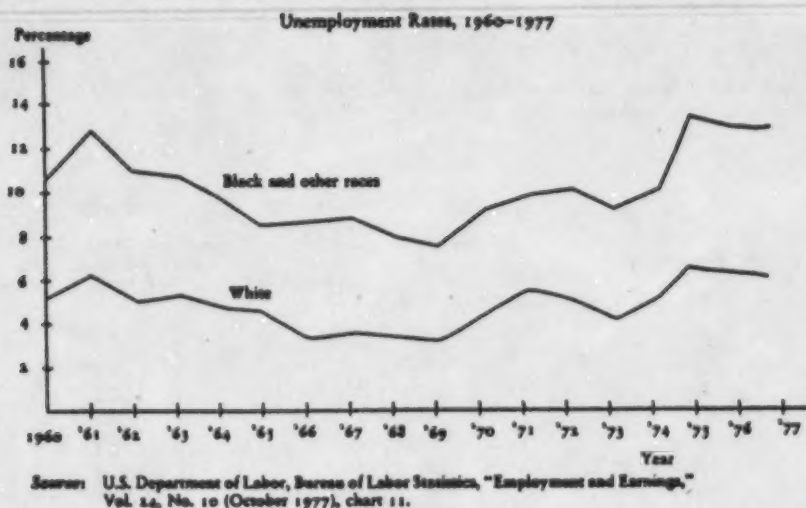
Racial/ethnic group	Percent by age group					
	Total	25 to 29	30 to 34	35 to 44	45 to 54	55 to 64 and over
Total	64.9	85.4	81.0	73.6	64.3	56.2
White	67.0	86.8	82.6	75.8	67.5	59.3
Black	45.5	74.5	67.2	55.7	35.6	26.1
Hispanic origin ¹	39.6	58.1	49.0	41.0	33.0	22.7
Male	65.6	86.6	82.4	74.3	62.5	53.5
White	67.5	87.6	83.5	76.2	65.7	58.4
Black	45.6	77.5	69.3	55.7	31.1	25.5
Hispanic origin ¹	42.3	62.1	53.6	43.7	35.7	20.8
Female	64.4	84.2	79.7	73.0	66.0	56.8
White	66.5	86.0	81.7	75.3	69.2	60.0
Black	45.4	72.0	65.3	55.7	39.2	26.6
Hispanic origin ¹	37.2	54.8	45.2	39.0	30.8	24.1

¹ Categories are not discrete (e.g., a person may be classified in both white and Hispanic origin categories).

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Educational Attainment in the United States: March 1977 and 1976*, Series P-20, No. 314, 1977.

From: The Condition of Education, 1979 Edition, p. 224.

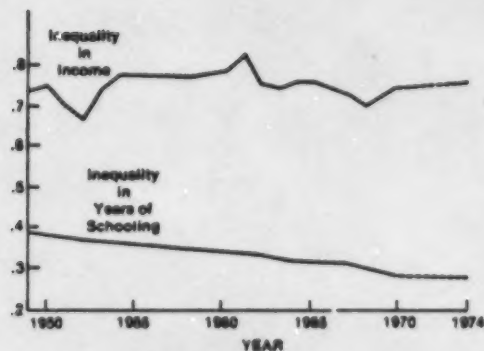
7.



From: Dorn, E. Rules and Racial Equality, p. 43.

8.

*Equalization of Education Has Not Been
Associated with Equalization of Income.*



NOTES: The upper line shows the trend over time in the degree of inequality of income, as measured by the standard deviation of the natural logarithm of annual income of males aged twenty-five or older. The lower line shows the trend over time in the degree of inequality of years of schooling, as measured by the coefficient of variation (the standard deviation divided by the mean) of the years of schooling obtained by males aged twenty-five and older. Data for 1970 to 1974 are estimates based on U.S. Census data.

SOURCE: Barry Chiswick and Jacob Mincer, "Time Series Changes in Personal Income Inequality in the U.S.," *Journal of Political Economy*, Vol. 80, No. 3, Part II (May-June 1972).

From: Bowles, S. and H. Gintis. Schooling in Capitalist America, p. 34.

9.

Median Income of Families, by Race of Head, 1950 to 1977

Year	Current Income		Absolute Difference	Ratio	CPI ^a	Constant Income (1967)		Constant Dollar Difference
	Whites	Blacks ^a				Whites	Blacks	
1950	3443	1869	1576	.54	1.387	4778	2592	2186
1951	3839	2032	1827	.53	1.283	4939	2611	2328
1952	4114	2338	1776	.57	1.258	5173	2941	2232
1953	4392	2461	1931	.56	1.248	5481	3071	2410
1954	4339	2410	1929	.56	1.242	5389	2993	2396
1955	4603	2549	2056	.55	1.247	5742	3178	2564
1956	4993	2628	2365	.53	1.229	6136	3230	2906
1957	5166	2764	2402	.54	1.186	6127	3278	2849
1958	5300	2711	2589	.51	1.153	6122	3131	2991
1959 ^b	5893	2808	3086	.52	1.145	6748	3489	3259
1960	5835	3233	2602	.55	1.127	6576	3643	3233
1961	5981	3191	2790	.53	1.116	6673	3561	3112
1962	6237	3330	2907	.53	1.104	6886	3676	3210
1963	6548	3463	3085	.53	1.091	7144	3780	3364
1964	6838	3724	3114	.54	1.076	7379	4007	3372
1965	7251	3886	3365	.54	1.058	7672	4111	3561
1966	7792	4507	3285	.58	1.029	8018	4638	3380
1967	8234	4873	3361	.59	1.000	8234	4873	3361
1968	8937	5360	3577	.60	.960	8580	5146	3434
1969	9784	5999	3785	.61	.911	8913	5463	3448
1970	10136	6279	3857	.61	.860	8803	5400	3403
1971	10872	6440	4432	.60	.824	8794	5306	3488
1972	11549	6864	4685	.59	.799	9228	5484	3744
1973	12595	7269	5326	.58	.752	9471	5666	4005
1974	13316	7808	5508	.58	.678	9055	5294	3761
1975	14268	8779	5489	.61	.621	8560	5452	3408
1976	15537	9242	6295	.59	.587	9120	5739	3381
1977	16740	9563	7177	.57	.554	9274	5298	3976

Source: U.S., Department of Commerce, Bureau of the Census, *Current Population Reports*, P-23, No. 54, "The Social and Economic Status of the Black Population of the United States, 1974" (Washington: GPO, 1975), table 9; *CPR*, P-60, No. 116, "Money Income and Poverty Status of Families and Persons in the United States, 1977" (Washington: GPO, 1978); I wish to thank Dwight Johnson of the Census Bureau for helping me locate the most recent data.

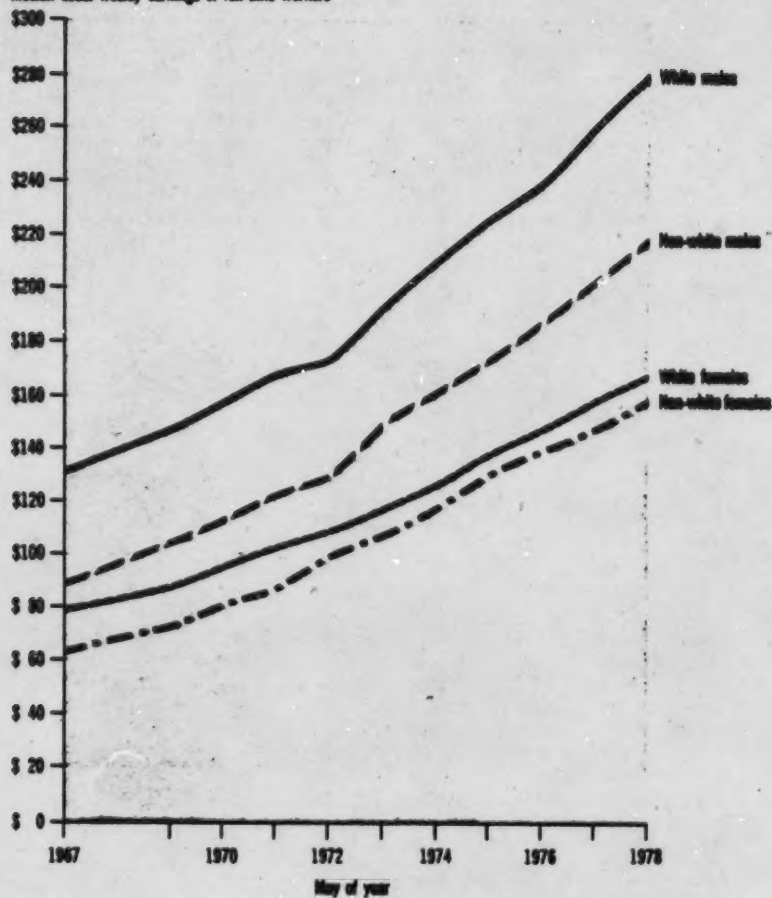
^a "Black" income prior to 1964 actually comprises "Negro and Other Races." An exception is 1959, when the Census Bureau measured black income separately.

^b The Consumer Purchasing Power Index (CPI) is the inverse of the Consumer Price Index. It is obtained from *Statistical Abstract of the United States*, 1977, Table 759, p. 470. Current income times CPI equals constant income.

From: Dorn, E. Rules and Racial Equality, pp. 34, 35.

10.

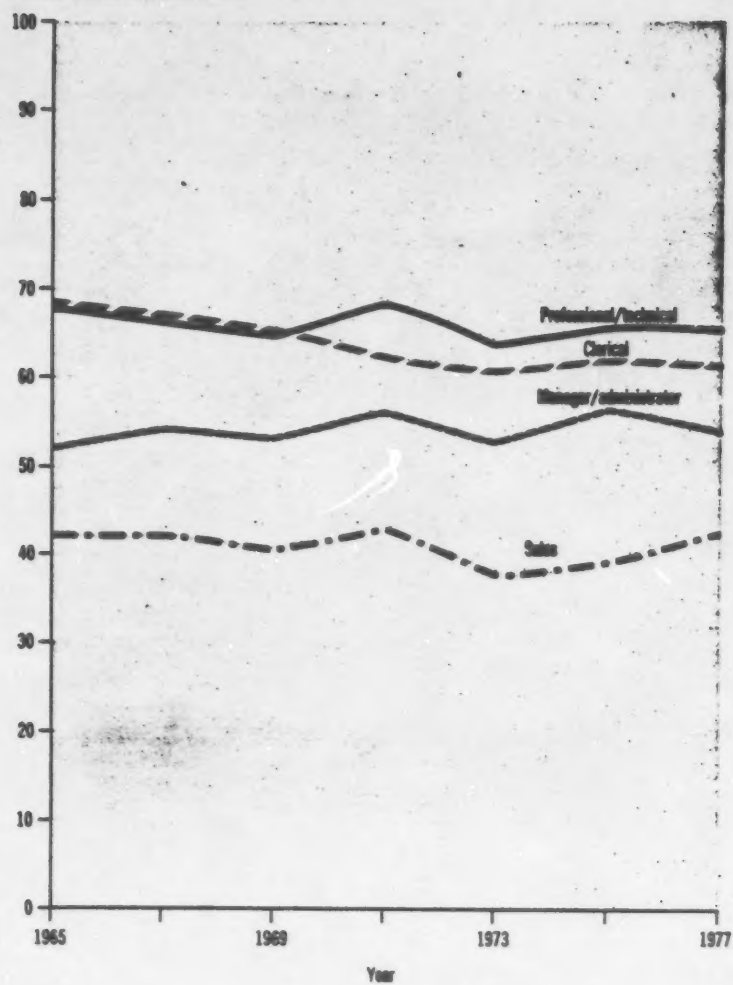
Median usual weekly earnings of full-time workers



From: The Condition of Education, 1979 Edition, p. 237.

11.

Females' salaries as percent of males'



From: The Condition of Education, 1979 Edition, p. 239.

12.

Average annual¹ salaries of 1967-77 bachelor's and master's degree recipients working full-time, by sex and by racial/ethnic group: February 1978

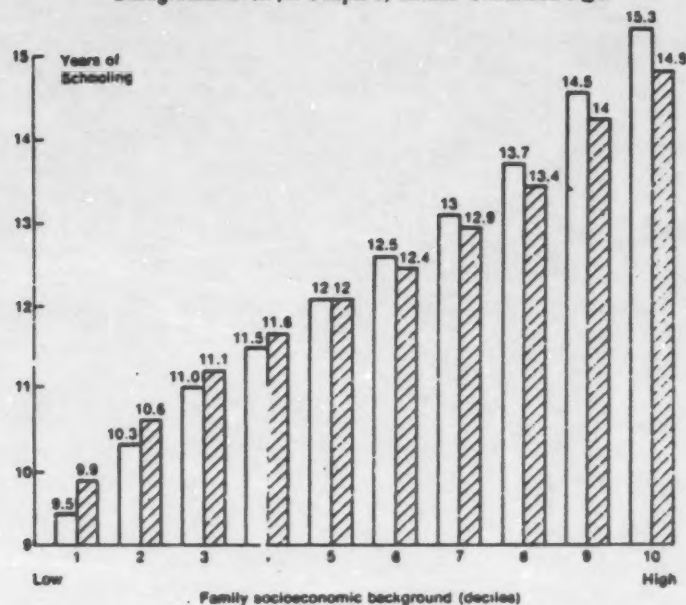
Characteristic	Average annual salary	
	Bachelor's degree recipients	Master's degree recipients
Total.....	\$11,700	\$16,000
White, non-Hispanic...	11,700	15,900
Black, non-Hispanic...	11,100	17,600
Other ²	12,900	16,300
Male.....	12,700	16,900
White, non-Hispanic...	12,700	17,000
Black, non-Hispanic...	12,000	17,200
Other ²	14,500	16,100
Female.....	10,300	14,900
White, non-Hispanic...	10,300	14,690
Black, non-Hispanic...	10,500	16,800
Other ²	11,000	16,600

SOURCE: U.S. Department of Health, Education, and Welfare, National Center for Education Statistics, 1978 Survey of 1976-77 College Graduates, preliminary data.

From: The Condition of Education, 1979 Edition, p. 240.

13.

Educational Attainments Are Strongly Dependent on Social Background Even for People of Similar Childhood I.Q.s



NOTES: For each socioeconomic group, the left-hand bar indicates the estimated average number of years of schooling attained by all men from that group. The right-hand bar indicates the estimated average number of years of schooling attained by men with IQ scores equal to the average for the entire sample. The sample refers to "non-Negro" men of "non-farm" backgrounds, aged 35-44 years in 1962.²⁶
 SOURCE: Samuel Bowles and Valerie Nelson, "The Inheritance of IQ: and the Intergenerational Transmission of Economic Inequality," *The Review of Economics and Statistics*, Vol. LVI, No. 1, February 1974. Reprinted by permission of the President and Fellows of Harvard College.

From: Bowles, S. and H. Gintis. Schooling in Capitalist America, p. 31.

Occupational Composition of Decile Shares, 1972*

Type of occupation	Tenth decile (lowest)	Ninth decile (\$3705—)	Eighth decile (\$5078—)	Seventh decile (\$6282—)	Sixth decile (\$7176—)	Fifth decile (\$8686—)	Fourth decile (\$9274—)	Third decile (\$11,940—)	Second decile (\$13,940—)	First decile (\$19,200—highest)	Top 3.5% (income \$25,000+)
<i>Male</i>											
Self-employed professional and technical (556)*	.5	.1	.2	.3	.3	.3	.6	.5	1.3	6.2	13.5
Salaried professional and technical (5217)	2.6	1.7	2.6	5.0	6.6	8.0	14.0	13.9	19.6	23.6	19.0
Self-employed managers and administrators (1153)	3.8	1.3	1.4	1.7	1.6	1.6	1.9	1.8	2.4	4.0	5.7
Salaried managers and administrators (5071)	1.7	1.5	2.2	4.4	5.7	6.7	11.9	11.8	18.0	30.3	39.7
Farmers and farm managers (1333)	10.0	2.5	2.1	1.8	1.6	1.4	1.3	1.3	1.3	1.4	1.5
Clerical (2673)	2.1	2.9	3.4	4.7	6.0	7.1	7.7	7.6	5.7	2.6	.8
Sales (2251)	1.9	2.1	2.4	3.4	3.4	3.4	5.1	5.0	6.3	8.8	10.8
Foremen (1228)	.3	.6	.9	1.7	2.2	2.6	1.7	4.0	3.9	2.6	.6
Craftsmen (7127)	5.7	6.6	6.3	4.7	11.0	16.3	20.3	19.9	17.7	11.0	3.0
Operatives (6748)	6.7	10.6	12.1	15.3	17.0	18.2	15.7	15.2	10.6	4.0	1.4
Service except private household (2507)	4.8	5.2	5.6	6.7	5.7	4.8	4.4	4.2	3.3	1.8	.8
Farm laborers and foremen (442)	3.0	1.4	1.1	.8	.7	.5	.2	.1	.2	.2	.1
Laborers (1870)	3.0	4.6	4.5	4.3	4.5	4.8	2.9	2.8	1.7	.2	.4

14 (Continued).

<i>Female</i>											
Self-employed professional and technical (48)	.3	.1	.1	.1	—	—	.1	.1	.1	.1	.2
Salaried professional and technical (2993)	3.0	3.3	4.4	7.9	8.8	9.6	6.7	6.4	4.3	1.5	.8
Self-employed managers and administrators (211)	1.6	.4	.3	.3	.2	.2	.2	.2	.2	.2	.2
Salaried managers and administrators (900)	1.4	2.1	2.3	2.6	2.1	1.7	1.4	1.4	1.1	.7	.4
Farmers and farm managers (115)	1.1	.3	.2	.1	.1	—	—	—	—	—	—
Clerical (6349)	11.7	25.5	25.9	22.9	15.4	8.8	2.9	2.6	1.6	.6	.7
Sales (684)	4.4	3.2	2.4	.1	.7	.4	.2	.1	.2	.2	.1
Craftsmen and foremen (276)	1.0	1.0	1.0	.9	.4	.2	.1	.1	.1	—	—
Operatives (2306)	9.7	11.3	9.7	5.3	3.5	2.0	.5	.5	.2	—	—
Private household workers (305)	4.0	.7	.4	.1	.1	—	—	—	—	—	—
Service except private household (2308)	15.4	10.4	8.1	3.8	2.2	1.4	.4	.3	.2	.1	.1
Unlabeled (114)	.7	.5	.4	.2	.1	.1	—	—	—	—	—
Total	100.4	99.9	100.0	99.1	100.0	100.1	100.2	99.8	100.1	100.1	99.8

Source: Calculated from U.S. Bureau of the Census (1972: 136-138). Percentage totals vary from 100% due to rounding.

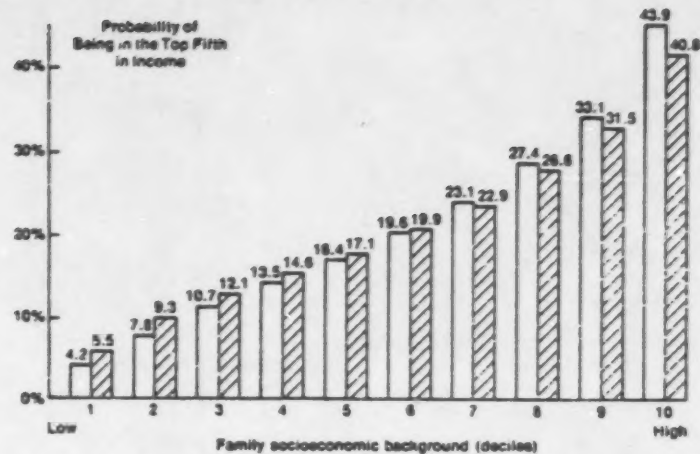
*Full-time employed income earners, civilian labor force.

*Total numbers in parentheses in thousands; other figures in this table represent percentages of each decile share.

From: Collins, R. The Credential Society, pp. 186, 187.

15.

*Relationship between Income and Inherited Social Status
cannot be Accounted for by Differences in I.Q.*



NOTES: The left-hand bar of each pair shows the estimated probability that a man is in the top fifth of the income distribution if he is in a given decile of socioeconomic background. The right-hand bar shows the estimated probability that a man is in the top fifth of the income distribution if he has average childhood IQ and is in a given decile of socioeconomic background.

Note that the bars of any given pair are very close, showing that the income/socioeconomic background relationship is almost the same for individuals with identical IQs as for all individuals.

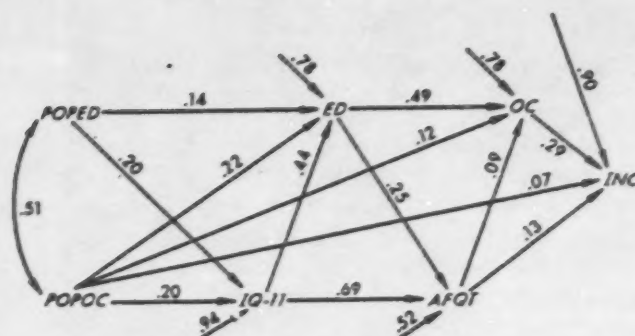
SAMPLE: Non-Negro males of nonfarm background, 1962, aged 35-44 years.

SOURCE: Samuel Bowles and Valerie Nelson, "The Inheritance of IQ" and the Intergenerational Transmission of Economic Inequality," *The Review of Economics and Statistics*, Vol. 56, No. 1, February 1974.

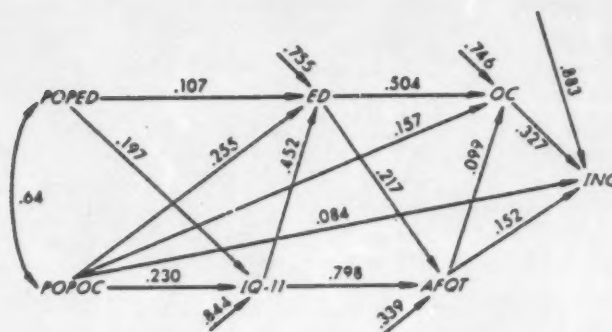
From: Bowles, S. and H. Gintis. Schooling in Capitalist America, p. 121.

16.

Relationships between Characteristics of Native White Nonfarm Males
Aged 25-64 in 1962, Based on Observed Correlations



Relationships between Characteristics of Native White Nonfarm Males
Aged 25-64 in 1962, Based on "True" Correlations



POPED = Father's Education
POPOC = Father's Occupation
IQ = Early Cognitive Skills
ED = Child's Educational Attainment
AFQT = Child's Later Cognitive Skills
OC = Child's Occupational Status
INC = Income

From: Jencks, C. et al. Inequality: A Reassessment of the Effects
of Family and Schooling in America, p. 339.

17. HIGH SCHOOL DROP-OUT RATE OF INDIAN STUDENTS IN SOUTH DAKOTA -- 19.75% (or four [4] times that of the non-Indian drop-out rate).

NATIONAL DROP-OUT RATE FOR INDIAN STUDENTS -- The median for schooling completed by Indians is 9.8 years; only 1/3 finish high school.

COLLEGE DROP-OUT RATE FOR INDIAN STUDENTS IN SOUTH DAKOTA -- Of the students who did not enroll, or who dropped out at second semester, 69% are freshmen.

GRADUATING SENIORS NATIONWIDE -- 68% go on to college.

GRADUATING INDIAN SENIORS NATIONWIDE -- 35% go on to college.

UNEMPLOYMENT RATE -- Ranges from 40% to 70%, depending on the reservation.

MEDIAN INCOME -- \$3,000 to \$4,500 lower than the average non-Indian.

From: Indian Education, Office of Curriculum and Instruction,
Pierre, S.D., 1979.

18. ACHIEVEMENT TEST DATA: Indians

- Comparing all tests and grades, Indian students scored lower than those in the non-Indian sample. The amount of difference, however, varied by test and grade level.
- Achievement test data on the Indian students in the sample indicated that the disparity between the students' expected performance and actual performance widens as the student advances through the grades.
- The elementary level reading scores were generally higher than language arts and math scores. Conversely, math scores tended to be higher at the middle school and high school level.
- Most of the achievement test data indicated serious developmental delays for a significant number of Indian students.
- National Curve Equivalent (NCE) scores were derived converting the Indian test data to a single comparable scale. Across all grade levels, test time periods, test levels, and test forms, the average NCE for Indian students fell between 5 and 7 points below the NCE midpoint (equivalent to the 50th percentile). Non-Indian students were generally 20 points higher than Indian students.
- In analysis of achievement test performance by income levels, EMS found that Indian students participating in the free lunch program performed below those Indian students who were not receiving free lunches.

From: Minnesota State Department of Education, Indian and Bilingual Needs Assessment, 1979.

19.

**The Difference Between Selected Racial/Ethnic Group
Achievement and the Achievement of All 17-Year-Olds**

	Percentage Points Difference From the Achievement of All 17-Year-Olds	Standard Error of the Difference	Number of Students
Social Studies			
White	2.39	0.21	22,690
Black	-13.56	0.56	3,464
Hispanic	-13.12	1.13	1,259
Science			
White	2.13	0.20	20,370
Black	-10.32	0.61	3,936
Hispanic	-11.08	1.08	1,105
Mathematics			
White	3.63	0.32	25,427
Black	-19.83	0.60	4,999
Hispanic	-14.36	1.02	1,376
Career and Occupational Development			
White	2.19	0.19	20,892
Black	-15.96	0.89	3,087
Hispanic	-7.65	2.08	729
Reading			
White	2.78	0.22	16,301
Black	-16.44	0.74	2,523
Hispanic	-11.42	1.54	550

From: Hispanic Student Achievement in Five Learning Areas, 1971-75,
p. 13.

20.

**The Difference Between Selected Hispanic Group Achievement and the
Achievement of All 17-Year-Olds (In School) in Five Learning Areas**

	Percentage Points Difference From the Achievement of All 17-Year-Olds	Standard Error of the Difference	Number of Students
Social Studies			
All Hispanic 17-year-olds	-13.12	1.13	1,259
Northeast	-17.84	3.04	228
West	-12.38	1.22	963
Male	-12.03	1.48	587
Female	-14.06	1.38	672
Parents not graduates of high school	-15.47	1.24	604
Parents graduates of high school	-6.81	1.42	403
Science			
All Hispanic 17-year-olds	-11.08	1.08	1,105
Northeast	-13.67	2.02	170
West	-10.87	1.25	839
Male	-8.32	1.47	501
Female	-13.40	1.03	604
Parents not graduates of high school	-12.36	1.30	536
Parents graduates of high school	-7.42	1.72	362
Mathematics			
All Hispanic 17-year-olds	-14.36	1.02	1,376
Northeast	-17.20	2.13	214
West	-14.30	1.22	1,033
Male	-10.67	1.60	634
Female	-17.94	0.75	742
Parents not graduates of high school	-15.52	1.56	668
Parents graduates of high school	-8.66	1.54	449
Career and Occupational Development			
All Hispanic 17-year-olds	-7.65	2.08	729
Northeast	-12.21	8.76	98
West	-6.84	1.86	512
Male	-9.17	2.79	372
Female	-5.67	2.35	357
Parents not graduates of high school	-10.26	2.71	356
Parents graduates of high school	-2.80	2.15	311
Reading			
All Hispanic 17-year-olds	-11.42	1.54	550
Northeast	-11.75	4.26	103
West	-11.06	1.79	409
Male	-13.39	1.70	283
Female	-9.20	1.65	267
Parents not graduates of high school	-12.86	1.38	264
Parents graduates of high school	-6.91	1.89	228

From: Hispanic Student Achievement in Five Learning Areas, 1971-75,
p. 24.

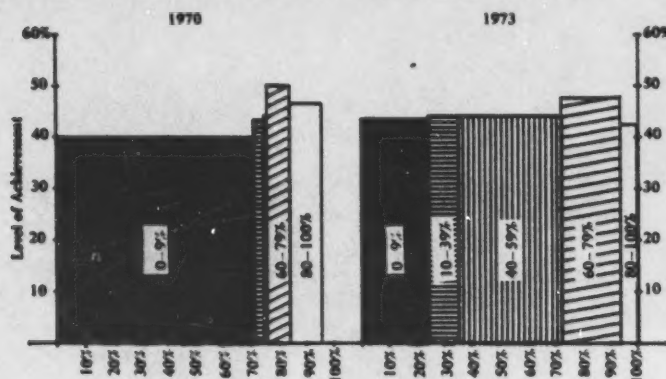
21.

**The Difference Between Selected Black Group Achievement and the
Achievement of All 17-Year-Olds in Five Learning Areas**

	Percentage Points Difference From the Achievement of All 17-Year-Olds	Standard Error of the Difference	Number of Students
Social Studies			
All black 17-year-olds	-13.56	0.56	3,464
Northeast	-10.48	0.85	605
West	-15.19	1.21	556
Male	-13.31	0.71	1,552
Female	-13.72	0.71	1,912
Parents not graduates of high school	-16.12	0.76	1,201
Parents graduates of high school	-9.93	0.53	1,889
Science			
All black 17-year-olds	-10.32	0.61	3,936
Northeast	-9.28	1.01	580
West	-10.95	1.15	578
Male	-8.95	0.73	1,758
Female	-11.41	0.72	2,178
Parents not graduates of high school	-10.07	0.56	1,281
Parents graduates of high school	-9.23	0.87	2,088
Mathematics			
All black 17-year-olds	-19.83	0.60	4,999
Northeast	-16.58	1.79	774
West	-19.86	1.05	715
Male	-18.53	0.71	2,243
Female	-20.75	0.72	2,756
Parents not graduates of high school	-23.67	0.79	1,671
Parents graduates of high school	-16.82	0.59	2,628
Career and Occupational Development			
All black 17-year-olds	-15.96	0.89	3,087
Northeast	-15.57	2.34	528
West	-17.71	1.39	466
Male	-17.24	1.29	1,472
Female	-14.85	1.06	1,615
Parents not graduates of high school	-18.00	1.29	1,003
Parents graduates of high school	-13.67	1.11	1,814
Reading			
All black 17-year-olds	-16.44	0.74	2,523
Northeast	-13.99	1.61	551
West	-20.01	3.35	235
Male	-19.24	0.90	1,170
Female	-14.05	0.94	1,353
Parents not graduates of high school	-19.39	0.85	794
Parents graduates of high school	-12.98	1.03	1,420

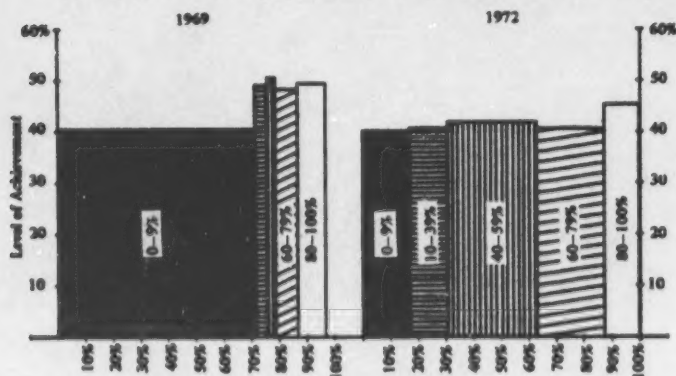
From: Hispanic Student Achievement in Five Learning Areas, 1971-75,
p. 76.

Level of Southeastern Black Achievement, Age 9, in Relation to Percent-White Composition of the Schools, 1970 and 1973



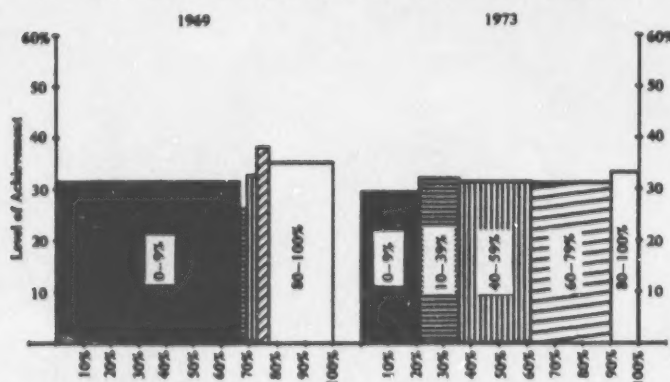
Distribution of Southeastern Blacks in Different Percent-White Categories

Level of Southeastern Black Achievement, Age 13, in Relation to Percent-White Composition of the Schools, 1969 and 1972



Distribution of Southeastern Blacks in Different Percent-White Categories

Level of Southeastern Black Achievement, Age 17, in Relation to Percent-White Composition of the Schools, 1969 and 1973



Distribution of Southeastern Blacks in Different Percent-White Categories

From: Science Achievement: Racial and Regional Trends, 1969-1973, p. 20.

APPENDIX C

NATIONAL ASSESSMENT PUBLICATIONS IN READING, WRITING AND LITERATURE

The following compendium is intended to provide snapshots of NAEP publications relating to literacy. All publications are available from NAEP offices in Denver.

Title: National Assessment and the Teaching of English

Assessment(s): 1969-70 Writing Assessment
1970-71 Reading Assessment
1970-71 Literature Assessment

Age Level(s): 9, 13, 17

Variables: Region, Sex, Race, Parental Education, Size and Type of Community

Data:

- Percent of Acceptable/Unacceptable Responses, Ten Writing Tasks
- Percent of "Yes" Responses to Questions about Writing
- Number of Mechanics Errors per 100 words of Writing
- Percent of Respondents Correct, Literal Comprehension Sentences, Imperative Mode
- Percent of Respondents Correct, Literal Comprehension Sentences, Declarative
- Percent of Respondents Correct, Inference Sentences
- Percent of Respondents Correct, Recognizing Specific Literary Works and Characters
- Percent of Correct Responses to Objective Items, Understanding Imaginative Language
- Percent of Correct Responses to MC Questions Requiring Written Statement of Supporting Reasons
- Percentages of Oral Responses Judged Adequate in Each of Four Major Response Categories
- Percentages of Total and Adequate Written Responses Classified According to Five Response Categories
- Percentages of "Yes" Responses to Questions About Literary Reading Habits and Attitudes

Other Content: Basic description of National Assessment of Educational Progress
Writing, Reading and Literature Objectives
Reading Passages used in assessment
Literary Works used in assessment
Discussion and interpretation of results
Discussion of assessment implications
Suggestions for classroom teaching

Related Material: All first assessment reports in Reading, Writing and Literature.

Comments: Several things about this book — commissioned by NAEP — make it valuable for the researcher in any of the language arts. First of all it presents a very handy summary of the first assessment results in reading, writing and literature. Secondly, it presents a reanalysis of the reading assessment results from a psycholinguistic point of view. Third, the healthy skepticism about testing that pervades the book permits the reader to put the results into a broad perspective. And fourth, the results and the assessment strategies are applied to current classroom instructional needs by someone who knows those needs well.

NAEP Reading assessment results, presented by NAEP in terms of median percentages of success and broken into 10 separate volumes, appeared to prove that the vast majority of people assessed were having no problems with reading. Mellon reanalyzed the results in an ingenious way and came up with less sanguine conclusions. He assumed that each multiple choice question required the transformational combining of stem and choices and then the truth testing of the four resulting sentences. So he turned each question

into a sentence, categorized the sentence in terms of its mode and its linguistic difficulty and rank ordered the sentences by percentage of success. Such a procedure was interesting in itself and also revealed that skill in reading higher level, "inferential" material was not nearly as widespread as had been supposed by people who had analyzed the results earlier. Mellon's model of the thought processes involved in answering multiple choice "comprehension" items raises serious measurement questions for anyone involved in the testing of reading.

Mellon's discussion of the writing assessment is useful to the teacher or the testing tyro, but the researcher will find little there of note. His criticism of various aspects of the assessment are familiar: it was atomized; its forced role-playing probably kept results deceptively low; extrapolations from the mechanics study are likely to be blown out of proportion and misunderstood; and NAEP needs more rhetorically-oriented tasks.

The discussion of the literature assessment clearly explicates the general difficulties involved in such an enterprise and the specific ones encountered by NAEP. Mellon feels that the attempt to measure response to literature consumed more time than its vague results justify. Consequently, researchers in this popular area should attend to this critique.

Mellon's summary examines such problem areas as motivational level of students being assessed, comprehensiveness of the assessments, utility of NAEP data and application of NAEP materials at state or local levels.

All in all, this book constitutes a fine, level-headed explanation and critique of NAEP work in the language arts. Its greatest limitation is that it was written prior to the reassessments of writing, reading and literature.

Title: Reading: Summary Data, National Assessment of Educational Progress
Report 02-R-00, ERIC # ED 094 359, July, 1974, 58 pages.

Type of Report: Technical summary

Assessment(s): 1970-71 Reading Assessment

Age Level(s): 9, 13, 17, Adult (26-35)

Variables: Region, Sex, Race, Parental Education, Size and Type of Community,
Size of Community

Item Type(s): No items

Data: Median variable group (males, blacks, etc.), difference (in percentage points) from national level of performance for each age on each Reading theme and each Reading objective

Other Content: Description of Reading objectives.
Description of Reading exercises.
Description of Reading themes.

Source Material Available to Researchers: Raw results on 1600 BPI, 9-track data tapes usable only on IBM 360 or 370 hardware with OS or VS operating systems @ \$94.00/tape.

Related Material: 02-R-01, Understanding Words and Word Relationships.
02-R-02, Graphic Materials.
02-R-03, Written Directions.
02-R-04, Reference Materials.
02-R-05, Gleaning Significant Facts From Passages.
02-R-06, Main Ideas and Organization.
02-R-07, Drawing Inferences.
02-R-08, Critical Reading.
02-R-09, Reading Rate and Comprehension.
02-R-30, Recipes, Wrappers, Reasoning and Rate.
02-G1Y, General Information Yearbook for Reading and Literature.
Mallon, John, National Assessment and the Teaching of English, NCTE, Urbana, Illinois, 1974.

Comments: This report consists of 40 tables which display median percentage differences from national performance and also display "directional tendencies" of each variable group. These latter reveal at a glance which, on a given theme (e.g., Understanding Main Ideas, etc.), a group (females, inner-city dwellers, etc.) tended to perform above, below or at the national level at each age.

The emphasis of the report is entirely upon group differences; this fact defines its utility for people interested in a highly abstract look at overall results and its irrelevance for people looking for exercises or exercise-level results.

Title: National Assessment of Educational Progress Report 8: Writing Mechanics,
ERIC # ED 062 325, 1972, 202 pages.

Type of Report: Selected Results, Primarily for English Teachers

Assessment(s): 1969-70 Writing Assessment

Age Level(s): 9, 13, 17, Adult (26-35)

Variables: National Data Only

Item Type(s): Essay and Letter

Data: Number of different words in high-, medium- and low-quality essays.
Total number of words in high-, medium- and low-quality essays.
Mean word length in letters.
Standard deviation of word length in letters.
Total number of sentences.
Number of declarative sentences.
Number of interrogative sentences.
Number of imperative sentences.
Mean sentence length in words.
Standard deviation of sentence length in words.
Number of paragraphs.
Mean paragraph length in sentences.
Standard deviation of paragraph length in sentences.
Relative pronouns.
Head position gerunds.
Head position adverbs.
Head position past participles.
Number of colons.
Number of semicolons.
Number of parentheses.
Number of quotation marks.
Obvious misspellings of common words (a common word is any word appearing
at least once every two papers).
Obvious misspellings of proper nouns.
Misspellings of uncommon words (uncommon words appeared less than once
every two papers).
Error counts in paragraphing, punctuation, capitalization, sentence
structure, agreement, and spelling and word usage.

Other Content: Essay assignments used for mechanics study.
Explanation of all qualitative and quantitative analyses
performed.
Characterizations of essays at different quality levels by
panel of "experts."
Sample essays.
Relationship of study sample to full populations of 9-year-
olds, 13-year-olds, 17-year-olds and adults.

Source Material Available to Researchers: Contact NAEP

Related Materials: Mellon, John, National Assessment and the Teaching of
English, Urbana, Illinois, 1975.
Slotnick, H.B., "Toward a Theory of Computer Essay Grading,"
Journal of Educational Measurement, Winter 1972.

Comments: From the entire distribution of about 2,500 essays, which had been
holistically marked, NAEP selected sample papers near the 15th, 50th

and 80th centiles for special analysis. Each paper was examined by two English teachers for mechanical errors and those were aggregated into "error counts." Then, a panel of judges read each set of papers and characterized, impressionistically, the sets, putting the error counts into a more meaningful perspective. The judges described good as well as bad qualities in the papers and discussed what the writers were trying to do and how well they were doing it. Finally, the essays were scanned by a computer programmed to provide information about fluency, spelling, diction, sentence structure, punctuation and paragraph development. The report presents results of this study for an essay at ages 9, 13 and 17, as well as a letter written by adults.

Although the report contains a good deal of interesting data and commentary, much of it can be summed up in the observations that good papers are easier to read, longer and less error ridden than poor papers, and that poor papers sound more like speech than writing.

These are not surprising revelations. Furthermore, the error counts, judges' judgments and computer analyses all support the general ordering of the papers established in a holistic scoring, as we would expect.

The primary virtue of this report is that it combines qualitative with quantitative approaches in an effort to flesh out our understanding of written products. Its primary liability consists in the fact that it is a product study and it focuses entirely on mechanics. This is exactly what it was supposed to be, of course; but there is just so much one can profitably learn within such a limited perspective.

Title: Critical Reading, National Assessment of Educational Progress Reading Report 02-R-08, ERIC # ED 078 387, May 1973, 169 pages.

Type of Report: Selected results

Assessment(s): 1970-71 Reading assessment

Age Level(s): 9, 13, 17, Adult (26-35)

Variables: Region, Sex, Race, Parental Education, Size and Type of Community, Size of Community

Item Type(s): Multiple choice: recognizing literary devices, inferring from metaphors, identifying mood, recognizing structure, drawing appropriate inferences.
Face validity.

Data: Percentages of success on released items for each age and for variable groups within age.
Summary distributions across all items, displaying median difference from national performance for each variable group at each age.
Performance comparisons on items common to two or more age levels.

Other Content: Introduction to reading assessment.
Items used in the assessment.
Discussion of selected items and their results.

Source Material Available to Researchers: Raw results on 1600 BPI, 9-track data tapes usable only on IBM 360 or 370 hardware with OS or VS operating systems @ \$94.00/tape.

Related Material: Reading and Literature General Information Yearbook, 02-GTY.
1970 Reading Objectives, especially Objective II, "Analyze What Is Read," and IV, "Reason Logically From What Is Read."
Recipes, Wrappers, Reasoning and Rate, 02-R-30.
Reading: Summary Data, 02-R-00.
Mellon, John, National Assessment and the Teaching of English, NCTE, Urbana, Illinois, 1974.

Comments: There is some overlap here with the Literature assessment, since many of these items use poems as stimuli. Since critical reading involves going back to the text after having read it once and analyzing it for greater understanding, and since, in order to measure critical reading skills we have to force people to go back to the text and test four hypotheses -- we can never be sure whether they can do it on their own or not. This qualification (a consequence of the multiple-choice format) aside, the material here is worth examining because it demonstrates problems with higher-level inference and it provides data about adult readers.

Title: Functional Literacy: Basic Reading Performance, National Assessment and Right to Read, 53 pages.

Type of Report: Joint report with Right to Read

Assessment(s): Special Right to Read assessments in 1974, 1975; Reading assessment, 1970-71.

Age Level(s): 17

Variables: Region, Race, Sex, Parental Education, Size and Type of Community

Item Type(s): Multiple choice, low-difficulty items selected from the 1970-71 item pool by Right to Read staff as "functional literacy" items.

Data: Mean percentages of success on 64 items for all variable groups, 1971, 1974 and 1975.
Mean percentages of success on 64 items compared to desired results, all three years.
Mean percentages of success on 64 items compared to highest expected results, all three years.
Mean percentages of success on 64 items compared to minimal standards, all three years.
Mean percentages of success on 86 items for all variable groups, 1974 and 1975.
Mean percentages of success on 86 items compared to desired results, two years.
Mean percentages of success on 86 items compared to highest-expected results, two years.
Mean percentages of success on 86 items compared to minimal standards, two years.
Percentages of success for unique exercises on which performance declined markedly.
Percentages of success for unique exercises on which performance improved markedly.

Other Content: Brief summary of results.
Explanation of study.

Source Material Available to Researchers: All items used are available upon request.

Related Material: MAFL Statistical/Documentary Report -- Summary Volume.
Handbook of the Mini-Assessment of Functional Literacy.

Comments: Right to Read selected exercises from the NAEP pool which they thought 100% of America's 17-year-olds should answer correctly and funded two "mini-assessments of functional literacy" (MAFL) using those items. This report presents the results of that study and also makes the only NAEP foray into "criterion testing." The Right to Read exercises were given to 100 students proven to be superior readers. Their percentage of success on any exercise was taken to be the "highest expected level of performance" and the results were recalculated using this index instead of 100% as one criterion against which to measure literacy. Right to Read also decided that 75% was the minimum percentage of success to qualify as functionally literate, and results for the variable groups were plotted against this standard as well.

In addition to the rather interesting criterion comparisons, this report also presents change data from 1971 to 1974 to 1975. Because it presents so much material in only a few pages, this report is rather hard to read. It requires some study. Serious researchers should also consult the statistical report, which is out of print, but available through ERIC.

Title: Literature Assessment: Summary Data, National Assessment of Educational Progress Report 02-L-00, ERIC # ED 079 685, June, 1973, 105 pages.

Type of Report: Technical summary for somewhat technically oriented audience

Assessment(s): 1970-71 Literature Assessment

Age Level(s): 9, 13, 17, Adult (26-35)

Variables: Region, Sex, Race, Parental Education, Size and Type of Community, Size of Community

Item Type(s): No items included in this report. It is based upon all the items used in the Literature assessment.

Data: Summary distributions across all items in each Literature report, displaying median difference from national performance for each variable group at each age.
Median differences from national performance for variable groups by Literature objectives.
Performance comparisons of age groups on common sets of items.

Other Content: Introduction to Literature assessment

Source Material Available to Researchers: Raw results on 1600 BPI, 9-track data tapes usable only on IBM 360 or 370 hardware with OS or VS operating systems @ \$94.00/tape.

Related Material: 02-GTY, Reading and Literature General Information Yearbook.
Purves, A., and Reppere, V., Elements of Writing About a Literary Work: A Study of Response to Literature, NCTE Research Report 9, Urbana, Illinois.
Mallon, John, National Assessment and the Teaching of English, NCTE, Urbana, Illinois, 1975.
Grindstaff, Faye Louise, "The National Assessment of Literature: A Review," Research in the Teaching of English, 9:1:80-97, Spring, 1975.

Comments: This report collects the summary information included in each Literature report and puts it all in one place. In addition, it presents results by objective and presents some interesting age and variable-group comparisons across the range of Literature items. It makes for very dull reading, but it does provide a useful overview of results for people who are unwilling or unable to read all the Literature reports.

Title: Drawing Inferences, National Assessment of Educational Progress Report
02-R-07, ERIC # ED 083 533, August, 1973, 258 pages.

Type of Report: Selected results

Assessment(s): 1970-71 Reading Assessment

Age Level(s): 9, 13, 17, Adult (26-35)

Variables: Region, Sex, Race, Parental Education, Size and Type of Community,
Size of Community

Item Type(s): Multiple choice: low- and high-level inference questions,
nonsense word items.
Face validity.

Data: Percentages of success on released items for each age and for variable
groups within age.

Summary distributions across all items, displaying median difference
from national performance for each variable group at each age.

Performance comparisons on items common to two or more age levels.

Other Content: Introduction to the Reading assessment.
Items used in the assessment.
Discussion of selected items and their results

Source Material Available to Researchers: Raw results on 1600 BPI, 9-track
data tapes usable only on IBM 360 or 370 hardware with OS or VS operating
systems @ \$94.00/tape.

Related Material: Reading and Literature General Information Yearbook, 02-GTY.
1970 Reading Objectives, especially Objective II, "Analyze
What Is Read," and IV, "Reason Logically From What Is Read."
Recipes, Wrappers, Reasoning and Rate, 02-R-30.
Reading: Summary Data, 02-R-00.
Mellon, John, National Assessment and the Teaching of
English, NCTE, Urbana, Illinois, 1974.

Comments: Percentages of success are a good deal lower in this report than
they are in the others, indicating that reading achievement must
be looked at in as many ways as possible in order to draw legitimate
conclusions. Clearly, most Americans can read such low-level
inference materials as are necessary to "make do" or "survive" or
"graduate." But ability to comprehend even modestly complicated
text is not so widespread at any age and is appallingly skimpy
among certain variable groups. This fact, overlooked because of
the relatively good performance on the entire assessment,
bears further study. Like the rest of the Reading reports, this
one, too, is useful as a rare source of data on adult reading
ability.

Title: Reading in America: A Perspective on Two Assessments, National Assessment of Educational Progress Report 06-R-01, ERIC # ED 128 785, October, 1976, 30 pages.

Type of Report: Interpretive overview for general audience

Assessment(s): 1970-71, 1974-75 Reading assessments

Age Level(s): 9, 13, 17

Variables: Region, Sex, Race, Parental Education (post-high-school and no-high-school education only), Size and Type of Community (high metro, low metro, rural only)

Item Type(s): A few items are shown as examples, but most of the items used to measure change in reading performance were not released. The majority are multiple-choice questions, such as those displayed in reports about the first assessment.

Data: National and variable group mean percentages of success, 1970-71 assessment, 1974-75 assessment, for literal comprehension items, inferential comprehension and reference skills items, ages 9, 13 and 17. National percentages of success on selected exemplary items.

Other Content: Interpretive comments about changes (and nonchanges) in reading performance between the two assessments by Roger Farr, William Blanton, Carita Chapman, Diane Lapp, Wayne Otto and Robert Tierney.

Source Material Available to Researchers: Some. Contact Wayne Martin at NAEF

Related Materials: 02-R-01, Understanding Words and Word Relationships.
02-R-02, Graphic Materials.
02-R-03, Written Directions.
02-R-04, Reference Materials.
02-R-05, Gleaning Significant Facts From Passages.
02-R-06, Main Ideas and Organization.
02-R-07, Drawing Inferences.
02-R-08, Critical Reading.
02-R-09, Reading Rate and Comprehension.
06-R-00, A Summary of Changes in Reading Achievement.

Comments: The second Reading assessment revealed a significant improvement in reading ability at age 9 but little change at ages 13 or 17. At all ages there seems to be a problem comprehending basic, literal written material; but comprehension drops off quickly as soon as the tasks become difficult. These facts form the focus of a conversation about the assessments and their meaning among six distinguished reading experts who have examined the materials upon which the results rest. Researchers will find hints about potential directions to pursue, but they will not find sufficient data in this report to satisfy their curiosity because it was written for a general audience; more interested in experts' opinions than in statistics. The much more comprehensive summary, 06-R-00, would be a better place for researchers to start.

Title: Responding to Literature, National Assessment of Educational Progress
Report 02-L-02, ERIC # ED 077 020, 1973. 231 pp.

Type of Report: Selected Results for General Audience

Assessment(s): 1970-71 Literature Assessment

Age Level(s): 9, 13, 17, Adult (26-35)

Variables: Region, Sex, Size and Type of Community, Race, Parental Education,
Size of Community

Item Type(s): Oral Responses to Literary Works.
Written Response to Literary Works.

Data: Percentages of people responding to literary works in the following modes:
Engagement Involvement
Formalistic
Interpretive
Evaluative
Retelling

Percentages of responses judged "inadequate," "barely adequate,"
"adequate" and "superior."

Other Content: Literary Works Used to Elicit Responses.
Explanation of Response Categories.
Sample Responses.

Source Material Available to Researchers: Raw results on 1600 BPI, 9-track data
tapes usable only on IBM 360 or 370 hardware with OS or VS operating systems
@ \$94.00/tape.

Related Material: 02-GIY, Reading and Literature General Information Yearbook.
Purves, A., and Reppere, V., Elements of Writing About a
Literary Work: A Study of Response to Literature, NCTE
Research Report 9, Urbana, Illinois.
Mellon, John, National Assessment and the Teaching of
English, NCTE, Urbana, Illinois, 1975.
Grindstaff, Faye Louise, "The National Assessment of
Literature: A Review," Research in the Teaching of
English, 9:1:80-97, Spring, 1975.

Comments: This study is based upon the response to literature system developed
by Purves and Reppere. That system, too unwieldy to employ with a
large sample of papers, was modified from a sentence-by-sentence
analysis to a holistic analysis of the entire response. That is,
scorers indicated that the primary thrust of the response was either
evaluative or interpretive or whatever. In addition, scorers ranked
each written response on a 4-point scale from inadequate to superior.

Nine-year-olds were read a story and asked a series of questions about
it. Their tape-recorded responses to the questions were transcribed
and categorized, but the results are rather messy. The interview
questions tended to force particular response modes and the attempts
to evaluate responses were complicated by the brevity of so many
answers. All in all, the 9-year-old data is interesting but incon-
clusive. Thirteen-year-olds, 17-year-olds and adults were given
poems and short stories to respond to in writing, and these results
are meastier.

This report raises important questions about the relationship between research and assessment. Researchers can design studies like this one much more comprehensively than NAEP can. They can give the students more time, find out more about them, control for various factors and give subjects several opportunities to display their repertoire of response modes. NAEP can give students one 15-minute shot at responding within a test-like situation.

Title: Explanatory and Persuasive Letter Writing, NAEP Report 05-W-03,
ERIC #ED 135 006, February 1977

Type of Report: Selected Results for General Audience

Assessment(s): 1969-70, 1972-74 Writing Assessment

Age Level(s): 9, 13, 17, Adult (26-35)

Variables: Males, Females, Blacks, Whites, Low Metro, High Metro

Item Type(s): Open-ended: personal letters (audience specified); fill in the blanks -- greeting, closing, addressing conventions; letters to organizations (situation specified); employment application letters.

Data: National and Group Variable: percentages of youngsters writing "inadequate," "basic," "competent" and "excellent" letters; percentages of youngsters demonstrating control of various rhetorical skills (primary trait scores); changes in some percentages between 1969 and 1974 assessments.

Other Content: Examples of exercises and responses

Source Material Available to Researchers: Contact NAEP for access to original essays or reproductions.

Related Material: Writing, 1969-1974: Technical Report for complete documentation of results including standard errors of percentages.
NAEP Writing Objectives, 1969 version and 1974 version.

Comments: Some items are interesting in themselves, but there is no summary information across writing assignments, making generalizations about overall writing competence impossible. No two exercises were scored with exactly the same criteria. Adult results appear for only two items. These results also appear in Adult Work Skills and Knowledge NAEP Report 05-CCD-01.

Title: General Information Yearbook, NAEP Report 02-GIY, ERIC #ED 072 421, May 1972.

Type of Report: Technical Background.

Assessment(s): Reading, Literature, 1970-71.

Age Level(s): Applies to 9, 13, 17, Adult (26-35).

Variables: Describes all variables used in 1970-71.

Item Type(s): No items included.

Data: None.

Contents: Background information about the 1970-71 Reading and Literature assessments including:

- development of objectives
- development of exercises
- definition of variable groups
- sampling procedures
- administration procedures
- scoring of items
- data processing
- data analysis procedures
- selection of exercises for reports
- caveats about assessment data
- virtues and liabilities of data adjustments

Related Material: All Reading and Literature reports.

Comments: Necessary background for any serious research using the data from these assessments.

Title: A Survey of Reading Habits, Report 02-L-04, ERIC #ED 078 366,
May 1973

Type of Report: Selected Results for General Audience

Assessment(s): 1970-71 Literature Assessment

Age Level(s): 9, 13, 17, Adult (26-35)

Variables: Region, Sex, Race, Parental Education, Size and Type of Community

Item Type(s): Survey (group and individual): Yes/no; agree/disagree; written
and spoken responses to attitude and experience questions

Data: National percentages reporting various attitudes toward and levels of
involvement with literature, as well as various kinds of literature
most often read.

Variable group results expressed both as absolute percentages and as
differences from the national percentages on each question.

Variable group results expressed as median differences from the nation
across all questions.

Sample spoken and written responses to survey questions.

Standard errors for all percentages in an appendix.

Other Contents: Survey items: Attitudes toward literature
Reading inventories (novels, poems, plays,
non-fiction, short stories, criticism,
biography, magazines)

Involvement with literature (re-reading,
reading another book by the author of a book
you enjoyed, reading a book and seeking to see
a movie, play or television version)

Should movies be taught in English classes?
Why or why not?

Source Material Available to Researchers: Raw results on 1600 BPI, 9-track data
tapes usable only on IBM 360 or 370 hardware with OS or VS operating
systems @ \$94.00 per tape.

Related Material: 02-L-20, Literature: Summary Data.
02-GIY, General Information Yearbook, 1972.
Johnson, Simon, "How Students Feel About Literature,"
American Education, Vol. 10, No. 3, April 1974.
Mellon, John, National Assessment and the Teaching of
English, NCTE, Urbana, Illinois, 1975.

Comments: Because there is little specific information available about national
preferences in reading (by genre and by level of sophistication
within genre), this is a unique and very useful report. Sample
responses to questions like "Do you think movies should be studied
as part of English classes?" make good reading.

Title: Recipes, Wrappers, Reasoning and Rate, NAEP Reading Report 02-R-30,
ERIC #ED 092 869, April 1974

Type of Report: Digest of Reading Assessment Results for General Audience,
Including Interpretive Chapter

Assessment(s): 1970-71 Reading Assessment

Age Level(s): 9, 13, 17

Variables: Region, Sex, Race, Parental Education, Size and Type of Community.
Special attention devoted to race and sex differences in performance

Item Type(s): Multiple-choice items appear as examples

Data: No results data that does not appear in other reading reports.

Other Content: Interpretive discussion of results. Table displaying number of
exercises in each reading report at each age level. Median differences
between group and national results for all items in Reading assessment.
Percentages of blacks and whites in each parental education category.

Related Material: 02-GIY, Reading and Literature General Information Yearbook.
All Reading reports.
Reading Objectives.
Mellon, John, National Assessment and the Teaching of
English, NCTE, Urbana, Illinois, 1975.

Comments: This volume reviews results published in Reports 02-R-01 through 02-R-09
with particular emphasis upon differential performance of males and females
and blacks and whites. It concludes with an interpretive discussion of
results among Mary Ann Baird, Colin Dunkeld, Olive Niles, George
Phillips, Harold Herber, David Yerrington and author Donald Gallo. A
useful overview of the results, but not sufficient. Must be complemented
by the Mellon book.

Title: First Assessment Literature Objectives, 1965, ERIC # ED 041 009, 21 pp.

Type of Report: Objectives Booklet

Assessment(s): 1970-71 Literature Assessment

Age Level(s): 9, 13, 17, Adult (26-35)

Contents: Introduction to NAEP.

Description of objectives development procedures.

Literature Objectives:

- I. Read literature of excellence
 - A. Be acquainted with a wide variety of literary works
 - B. Understand the basic metaphors and themes through which man has expressed his values and tensions in Western culture
- II. Become engaged in, find meaning in and evaluate a work of literature
 - A. Respond to a work of literature
 - B. Find meaning in a work of literature
 - C. Evaluate a work of literature
- III. Develop a continuing interest and participation in literature and the literary experience
 - A. Be intellectually oriented toward literature
 - B. Be affectively oriented to literature
 - C. Be independently active and curious about literature
 - D. Relate literary experience to one's life

Discussion of each objective and subobjective.

Description of relevance of each subobjective to each age group.

Names of people associated with the development and review of literature objectives.

Comments: These objectives, developed by Educational Testing Service in the mid-sixties, represent a somewhat elitist, "belletristic" concept of literature. They assume that "literature" is a body of works rather than a way of using language and that "literature of excellence" can be specified in objective terms. Both assumptions are true only in limited ways and both would steer assessment activities in a direction familiar to ETS test takers. Unfortunately, a nationwide assessment cannot assume that participants share knowledge of specific works and criteria for adjudging excellence; some of the objectives were bound to go to waste, and some of them were bound to waste precious time as assessors tried to determine how many Americans recognize Paul Bunyon or Job or whomever.

The second objective, however, was appropriate, though measurement of it was no trivial or inexpensive task.

On the whole, these objectives are interesting as a culminating expression of viewpoint nurtured by university interests, propagated by college testing and sustained by the relative economic health of education in the 50s. It was a narrow viewpoint that was already in question and endangered when the objectives were developed. By the time the assessment was administered, this perspective, by itself, was obsolete.

Title: Reading Rate and Comprehension, NAEP Reading Report 02-R-09,
ERIC # ED 076 934, December 1972. 225 pp.

Type of Report: Selected Results for General Audience.

Assessment(s): 1970-71 Reading Assessment

Age Level(s): 9, 13, 17, Adult (26-35)

Variables: Region, Sex, Race, Parental Education, Size and Type of Community,
Father's education, Mother's education, Reading materials in the house.

Item Type(s): Reading Rate Measures; multiple-choice comprehension questions
focusing on recall of details.

Data: Percentages of people at each age level and in each variable group
reading fewer than 100 w.p.m., 100-199 w.p.m., 200-299 w.p.m. and more
than 300 w.p.m.

Distributions of reading rates from 0 to over 75 w.p.m. across different
passages at each age level.

Spache, Lorge, Fog, Dale Chall and SMOG Readability Indices for passages.

Percentages of people at each age level and in each variable group cor-
rectly answering comprehension questions, crossed with reading rate (e.g.
75% of the male 17-year-olds who read at 100-199 w.p.m. correctly answered
four or five out of five comprehension questions after reading a passage).

Analysis of exceptionally fast (> 750 w.p.m.) and exceptionally slow
(< 50 w.p.m.) readers.

Percentages of people at each age level and in each variable group: high
comprehension within reading rate.

Percentages of people at each age level and in each variable group: rate
within comprehension.

17-year-old and adult performance compared on common items.

Discussion of items and results.

Other Content: Passages used for assessment of rate
Items used for assessment of comprehension

Related Material: 02-GIY, General Information Yearbook, 1972.
02-R-30, Recipes, Wrappers, Reasoning and Rate: A Digest
of the First Reading Assessment, 1974.
02-R-00, Summary Data, 1974.
Mellon, John, National Assessment and the Teaching of English,
NCTE, Urbana, Illinois, 1975.

Comments: The utility of this report will depend upon the reader's attitude toward
the subject of reading rate itself. Those who think it a trivial subject
will not find it useful; those who are interested in rate will find
little that is new or unexpected. NAEP found few "super readers"
(> 750 w.p.m.), a fact which might be dismaying to Evelyn Wood students.
The major utility of the book lies in the fact that it is a national
study of reading rate and it contains data on 9-year-olds, 13-year-olds,
17-year-olds and adults.

Title: National Assessment of Educational Progress Writing Objectives, Second Assessment, 1972. ERIC # ED 072 460, 33 pp.

Type of Report: Objectives Booklet

Assessment(s): 1973-74 Writing Assessment

Age Level(s): 9, 13, 17.

- Contents:
- Introduction to NAEP
 - Description of procedures used to revise objectives
 - Writing Objectives:
 - I. Demonstrates ability in writing to reveal personal feelings and ideas.
 - A. Through free expression
 - B. Through the use of conventional modes of discourse
 - II. Demonstrates ability to write in response to a wide range of societal demands and obligations. Ability is defined to include correctness in usage, punctuation, spelling, and form or convention as appropriate to particular writing tasks, e.g., manuscripts, letters.
 - A. Social
 - 1. Personal
 - 2. Organizational
 - 3. Community
 - B. Business/Vocational
 - C. Scholastic
 - III. Indicates the importance attached to writing skills.
 - A. Recognizes the necessity of writing for a variety of needs (as in I and II)
 - B. Writes to fulfill those needs
 - C. Gets satisfaction, even enjoyment, from having written something well

Related Materials: All second writing assessment reports

Comments: The differences between these and the previous objectives are instructive. Most striking is the first objective, which did not appear in the earlier set. The notions that writing begins with the satisfaction of personal needs and that expressiveness is critical to writing are ideas that have acquired renewed importance in the seventies. These objectives are much more detailed than the earlier ones, also. Each objective is explained at length and adequacy of expression is defined with sample papers. The reader of this booklet comes away with a philosophy of writing, a feel for adequacy and a framework as useful for instruction as for assessment. Because they are so comprehensive, these objectives are useful correctives for people under pressure to test "basic" writing.

Title: National Assessment of Educational Progress Writing Objectives, 1969,
ERIC # ED 033 870, 19 pp.

Type of Report: Objectives Booklet

Assessment(s): 1969-70 Writing Assessment

Age Level(s): 9, 13, 17, Adult

Contents:

- Introduction to NAEP by Ralph Tyler
- Description of procedures used to develop writing objectives
- Writing Objectives
 - I. Write to Communicate Adequately in a Social Selection
 - II. Write to Communicate Adequately in a Business or Vocational Situation
 - III. Write to Communicate Adequately in a Scholastic Situation
 - IV. Appreciate the Value of Writing
- Names of individuals responsible for objectives.

Related Material: All Writing Assessment reports

Comments: These objectives, developed by Educational Testing Service in 1963, reflect a "situational" view of writing. Although the word "adequately" is used throughout, it is never defined; the drafters of the objectives express hope that this problem can be passed on to readers of the reports, who will judge adequacy by reading sample essays. In their refusal to tie grammar to writing and in their leanings toward rhetorical theory, these objectives were relatively sophisticated for 1963. The absence of an objective dealing with personal writing, however, was a glaring oversight. Fortunately, that would be corrected in the next objectives.

Title: National Assessment of Educational Progress Reading Objectives, 1970,
ERIC # ED 041 010, 34 pp.

Type of Report: Objectives Booklet

Assessments(s): 1970-71 Reading Assessment

Age Level(s): 9, 13, 17, Adult (26-35)

- Contents:
- Introduction to NAEP
 - Description of procedures used to develop objectives
 - Reading objectives
- I. Comprehend What Is Read
 - A. Read individual words
 - B. Read phrases, clauses and sentences
 - C. Read paragraphs, passages and longer words
 - II. Analyze What Is Read
 - A. Be able to trace sequences
 - B. Perceive the structure and organization of the work
 - C. See the techniques by which the author has created his effects
 - III. Use What Is Read
 - A. Remember significant parts of what is read.
 - B. Follow written directions
 - C. Obtain information efficiently
 - IV. Reason Logically from What Is Read
 - A. Draw appropriate inferences from the material that is read and "read between the lines" where necessary
 - B. Arrive at a general principle after examining a series of details
 - C. Reason from a general principle to specific instances
 - V. Make Judgments Concerning What Is Read
 - A. Relate what is read to things other than the specific material being read
 - B. Find and use appropriate criteria in making judgments about what is read
 - C. Make judgments about a work on the basis of what is found in the work itself
 - VI. Have attitudes about and an interest in reading
 - Names of individuals responsible for objectives

Related Material: All reading assessment reports

Comments: Developed in 1965 by both Science Research Associates and Educational Testing Service for the National Assessment, these first Reading objectives are very comprehensive. Surprisingly, many of them remain relevant and anticipate the third set of combined Reading and Literature objectives developed in 1978. Although they reflect a 60's concern with such things as decoding, word attack skills and speed reading;

although they assume a no longer fashionable "bottom-up", hierarchical processing model; and although they make distinctions between literal and inferential comprehension which few people would support today, they nevertheless promote such goals as: using context for word identification; understanding jargon; comprehending structure and tone; interpreting figurative language in all manner of discourse; understanding various rhetorical devices; analyzing literary and expository works; recognizing propaganda; making value judgments; and more. They are not parochial, atomistic or trivial, as so many reading objectives are. The sophisticated will find some philosophical fuzziness and some placing of subskills under the wrong major skills, but the general reader will find in these an interesting starting point for curricular or assessment planning.

Title: National Assessment of Educational Progress Report 5: Writing, Group Results A, ERIC / ED 031 246, April, 1971, 143 pp.

Type of Report: Technical Summary for Technically-Oriented Audience

Assessment(s): 1969-71 Writing Assessment

Age Level(s): 9, 13, 17, Adult (26-35)

Variables: Sex, Region, Size of Community

Item Type(s): Multiple choice, short answer, yes/no

Data: Percentages of success and standard errors for each released exercise, each variable group, each age level.

Distribution of differences and median difference from the national performance level, each variable group.

Other Content: Introduction to NAEP; copies of released exercises; sample essays at the top, the middle and the bottom of the (holistically judged) quality distribution; discussion of exercises upon which groups performed atypically well or poorly.

Source Material Available to Researchers: Report 10 contains a sample of the essays written for this assessment

Related Material: 1969 Writing Objectives.
Mellon, John, National Assessment and the Teaching of English, NCTE, Urbana, Illinois, 1975.

Comments: See entry for Report 3 for brief discussion of problems in reporting results of holistic scoring. These problems are ameliorated somewhat when one is comparing groups to the national level of performance. This is so because even if the national percentage has no definite meaning, departures from it by different groups of people do! This report still cannot tell us how well people write, but at least it can tell us which groups perform better and which worse than average.

This is a very difficult report to read, partly because the data have been overanalyzed (statistically), and underthought about. But it is worth wading through because it documents unequal achievement of various groups of people, including adults.

Title: National Assessment of Educational Progress Report 3: Writing. National Results, ERIC # ED 051 245, November, 1970, 162 pp.

Type of Report: National Results for General Audience

Assessment(s): 1969-70 Writing Assessment

Age Level(s): 9, 13, 17, Adult (26-35)

Variables: None

Item Type(s): Multiple choice, essay/letter, short answer, yes/no

Data: Percentages of success by exercise for each objective, each age; percentages of yes/no responses; results compared for exercises taken by two or more age levels; special study of 13-year-olds' and 17-year-olds' performance on an essay task assigned to both.

Other Content: Background on NAEP; writing objectives; description of data gathering methods; copies of actual exercises used in assessment; scoring guides for short answer and essay questions; examples of essays at the top, the middle and the bottom of the (holistically judged) quality distribution; description of NAEP variable groups; description of sampling and weighting procedures; description of essay scoring procedures and special overlap study; number of respondents by package and age.

Source Material Available to Researchers: Report 10 contains a sample of the essays written for this assessment.

Related Material: 1969 Writing Objectives.
Mellon, John, National Assessment and the Teaching of English, NCTE, Urbana, Illinois, 1975.

Comments: With the writing of this first report, it became clear that the assessment of writing was not structured in a way that facilitated conclusions about the quality of writing in America. Each objective (Write to Communicate Adequately in a Social Situation, a Vocational Situation and a Scholastic Situation; Appreciate the Value of Writing) was assessed with exercises which were too few in number and too different in kind to allow any aggregation of them into summary data or general statements. The results (which ranged from very low to very high percentages) must be considered on an exercise-by-exercise basis.

Reporting of essay results founders upon the Achilles heel of holistic scoring. Since there are no criteria for excellence and the scoring is entirely relative, all we know is that the essays fell into a normal distribution; some are better than others, but we do not know why and the report cannot tell us why. An ingenious attempt to solve this problem by presenting essays and telling the reader that "13% of the essays were this good or better" only places the burden of criteria upon the reader and leaves us wondering about the exact nature of these unimaginable "equally good or better" essays. This serious weakness led to the development of primary-trait scoring, which enables one to describe essays in terms of absolute quality and make concrete judgments about improvement or decline.

Because it contains data about adult writing performance, because many of the writing tasks are interesting in themselves and because it illustrates so well the problems involved in reporting the results of holistic scoring, the report is well worth examining.

Title: Second Assessment Literature Objectives, 1973; ERIC # ED 113 737, 12 pp.

Type of Report: Objectives Booklet

Assessment(s): Because the second literature assessment was delayed by five years, these objectives per se have never been assessed. Parts of this document were blended with Reading objectives for the 1980-81 Reading/Literature assessment.

Age Level(s): 9, 13, 17

Contents: Description of procedures for developing revised objectives.
Background rationale for objectives.

Objectives:

- I. Experiences literature -- is aware that literary qualities exist in a variety of forms. Seeks experiences with literature in any form, from any culture.
 - A. Listens to literature
 - B. Reads literature.
 - C. Witnesses literature.
- II. Responds to literature -- responds to literature in any form, from any culture, in a variety of ways -- emotionally, reflectively, creatively -- and shares responses with others.
 - A. Responds emotionally -- participates emotionally in the world of a work of literature
 - B. Responds reflectively -- understands a work of literature by reflecting upon it in a variety of ways
 - C. Responds creatively -- uses language imaginatively in response to a work of literature
 - D. Shares responses with others -- shares emotional, reflective and creative responses in a variety of ways
- III. Values literature -- recognizes that literature plays a significant continuing role in the experience of the individual and society
 - A. Recognizes that literature may be a source of enjoyment
 - B. Recognizes that experience with literature may be a means of developing self-understanding and personal values
 - C. Recognizes that experience with literature may be a means of understanding the nature of man and the diversity of culture
 - D. Recognizes that literature and society may influence each other
 - E. Recognizes that literature may be a significant means of transmitting and sustaining the values of a culture

People associated with the development and review of objectives.

Comments: The most striking differences between these and the first objectives is the shift in the definition of literature away from the concept that it is a corpus of works, toward the notion that it is a quality of language use. The statement of assumptions says quite plainly "Literature is language used imaginatively." It follows from this radical shift that literary instruction is instruction about particular uses of language, not instruction centered upon a list of "great books" or "literature of excellence." Indeed, the goal that people learn about a wide range of classic texts disappeared entirely in these objectives. They presume that all people have access to "literary experience" as long as they have access to language and imagination. From the elitism of the first objectives we swing to an opposite extreme of "egalitarian" goals -- more vague, to be sure, less confident -- but more interesting and challenging in compensation.

A lack of confidence in literature as a definable discipline with a specific content reveals itself also in the statements about valuing. The 1965 objectives state boldly "Recognize that participating in the literary experience is a prime form of enjoyment"; in 1975, however, consultants felt more comfortable with "Recognizes that literature may be a source of enjoyment" (Emphasis mine). Some would view this modification as a long-overdue descent from the ivory tower; others will see it as abandonment of belief or submission to the anti-intellectualism of the 60s and early 70s.

The 1965 and 1973 NAEP literature objectives reflect considerable changes in attitudes toward literary instruction after a profound decade of American experience. They are cultural, as well as educational documents, worth reflecting upon for cultural, as well as education, reasons.

Title: Write/Rewrite: An Assessment of Revision Skills, National Assessment of Educational Progress Report 05-W-04, July, 1977, 30 pp.

Type of Report: Selected Results for General Audience

Assessment(s): 1969-70, 1973-74 Writing Assessments

Age Level(s): 9, 13, 17

Variables: Region, Sex, Race, Community Type, Parental Education

Item Type(s): Essay, letter.

Data: National and variable group percentages of papers at 4 levels of quality, ages 9, 13
Percentages of people revising their papers/letters
Percentages making the following kinds of revisions: cosmetic, mechanical, grammatical, continuational, informational, transitional, stylistic, organizational, holistic

Other Content: Explanations of terms, scoring procedures, etc.

Source Material Available to Researchers: Contact NAEP

Related Material: Writing Technical Report: Released Exercise Volume

Comments: The flaws in this study should not detract from the fact that it is an extraordinary effort to gather national data on a critical aspect of the writing process. Nine- and 13-year-olds were given five facts about the moon and were asked to organize them into a paper about the moon. The report describes the organizational quality of the essays and then describes what happened when the students were told to "revise" their papers. Seventeen-year-olds were given a rhetorical situation involving a letter to a negligent grocer; their letters were evaluated in terms of their content and appropriateness of tone. They were also subjected to the same revision analysis as the younger students' papers were.

One can wish for more: for an assignment that covered all three ages; for more rigid "before" and "after" quality evaluations; for various syntactic, or linguistic analyses -- and so on. But there is plenty of useful information packed into this little report and it represents a productive start in this area of research. The categories of revision analysis can be more clearly defined by future researchers and tied more meticulously to various linguistic and semantic levels; but even as they stand, they have obvious classroom implications.

Title: National Assessment Report 11, Writing, ERIC # ED 077 029, 1973, 80 pp.

Type of Report: Selected Results for General Audience

Assessment(s): 1969-70 Writing Assessment

Age Level(s): 9, 13, 17, Adult (26-35)

Variables: Region, Sex, Color, Size and Type of Community, Parental Education

Item Type(s): Multiple choice, essay/letter, short answer

Data: Percentages of success for each age group and variable group within age.
Performance comparisons on items common to two or more ages.

Other Content: Exercises.
Discussion of results.

Source Material Available to Researchers: Contact NAEP

Related Material: Mellon, John, National Assessment and the Teaching of English, NCTE, Urbana, Illinois, 1975.
Writing Objectives.
Report 5.

Comments: This report was an afterthought attempt to present first assessment writing results in yet another form. Report 5 had presented summary results for all ages by sex, region and size of community. This report addresses the additional variables of race, size and type of community and parental education, but it presents exercise-level results, not (as Report 5 did) summary results across all exercises. It documents differential performance by various groups of people at different ages on quite different tasks, so it is worth perusing. Although it is organized by objective, generalization from the results of two or three tasks to conclusions about achievement of every objective remains impossible. The questions and results related to Objective IV, "Appreciate the Value of Writing," are quite interesting and do not appear anywhere else.

Title: Understanding Imaginative Language, National Assessment Report 02-L-01, ERIC # ED 077 002, 1973, 197 pp.

Type of Report: Selected Results for General Audience

Assessment(s): 1970-71 Literature Assessment

Age Level(s): 9, 13, 17, Adult (26-35)

Variables: Region, Sex, Size and Type of Community, Race, Parental Education, Size of Community

Item Type(s): Multiple choice, multiple choice with short answer defense of choice.

Data: Percentages of 9-year-olds, 13-year-olds, 17-year-olds and adults selecting correct answers.
Differences from national percentages for variable groups.
Standard errors for all percentages.
Distributions of group differences for all exercises in report.
Median difference from the nation on all exercises for each variable group.
Comparisons of 9, 13, 17 and adult performance on common items.

Other Content: Scoring criteria for short-answer responses.
Sample responses.

Source Material Available to Researchers: Raw results on 1600 BPI, 9-track data tapes usable only on IBM 360 or 370 hardware with CS or VS operating systems @ \$94.00/tape.

Related Material: 02-GIY, Reading and Literature General Information Yearbook. Literature Objectives, First Assessment.
Mellon, John, National Assessment and the Teaching of English, NCTE, Urbana, Illinois, 1975.
Grindstaff, Faye Louise, "The National Assessment of Literature: A Review," Research in the Teaching of English, 9:1:80-97, Spring, 1975.

Comments: This report deals with those assessment exercises designed to probe understanding of poetic rhythm and logic, puns, metaphors and genres as well as those assessing inference in poetry. These areas do not by any means exhaust the field of "imaginative language," and herein lies a built-in limitation of the report. Much was not assessed and some of what was assessed was not done well or thoroughly. Since results are reported exercise by exercise, the reader can pick and choose, but cannot generalize with much confidence.

REFERENCES

- Adult Performance Level Project. Adult Functional Competency. Austin, Texas: University of Texas, Division of Extension, 1975.
- Allen, S. and J. Mattheson. The Two Faces of Literacy. 1977. ERIC no. ED 154 351.
- American Indian Education: A Selected Bibliography (with ERIC Abstracts), ERIC/CRESS supplement no. 4. University Park, N.M.: New Mexico State University, December 1973. ERIC no. ED 086 378.
- Armstrong, Jane M. Achievement and Participation of Women in Mathematics: An Overview, Report 10-MA-00, 1978-79 Assessment. Denver, Colo.: Education Commission of the States, 1980. ISBN 0-89398-145-1.
- Armstrong, Jane M. A National Assessment of Achievement and Participation of Women in Mathematics, Report 10-MA-60, 1978-79 Assessment. Denver, Colo.: Education Commission of the States, 1979. ISBN 0-89398-144-3.
- Barabas, Jean, comp. The Assessment of Minority Groups: An Annotated Bibliography, ERIC/IRCD Urban Disadvantaged Series, no. 34. New York: Columbia University, August 1973. ERIC no. ED 083 325.
- Blau, Peter and Otis Duncan. The American Occupational Structure. New York: Free Press, 1978.
- Bloom, Benjamin S. et al. Taxonomy of Educational Objectives: The Classification of Educational Goals. Handbook I: Cognitive Domain. New York: David McKay, 1974.
- Bock, R. Darrell. "Methods of Educational Assessment: A Study of Alternatives." Unsolicited grant proposal, 1978.
- Boorstein, Daniel. The Americans: The National Experience. New York: Random House, 1967.

- Bormuth, J.R. "Reading Literacy: Its Definition and Assessment," in Toward A Literate Society, eds. J.B. Carroll and J. Chall. New York: McGraw-Hill, 1975.
- Boudon, R. Education, Opportunity and Social Inequality: Changing Prospects in Western Society. New York: John Wiley & Sons, 1974.
- Bowles, S. and H. Gintis. Schooling in Capitalist America. New York: Basic Books, 1976.
- Brittain, J. The Inheritance of Economic Status. Washington, D.C.: The Brookings Institution, 1977.
- Brown, R.G. "In Support of More Integrated Language Arts Programs," in Perspectives on Literacy, eds. Beach and Pearson. Minneapolis: University of Minnesota, 1978.
- Brown, R.G. "Levels of Writing Ability in America," in Writing: Process, Development and Communication, eds. Frederiksen and Dominic. New York: Lawrence Erlbaum, 1979.
- Bryant, E.C. et al. Associations Between Educational Outcomes and Background Variables: A Review of Selected Literature. Denver, Colo.: National Assessment of Educational Progress, Education Commission of the States, 1974. ERIC no. ED 096 348.
- Burstyn, Joan N. "Women and Education: A Survey of Recent Historical Research," Educational Leadership, vol. 31, no. 2, November 1973.
- Burton, N. "Assessment as Exploratory Research: A Theoretical Overview." Paper presented at the annual meeting of the American Educational Research Association, 1978. ERIC no. ED 160 646.
- Cicourel, A.V. et al. Language Use and School Performance. New York: Academic Press, 1976.
- Cohen, David K. Defining Racial Equality in Education, reprint no. 14. Cambridge, Mass.: Harvard Graduate School of Education, Center for Educational Policy Research, February 1969.
- _____. "Politics and Research," Review of Educational Research, vol. 40, no. 2, 1970.

- Cole, M. et al. The Cultural Context of Learning and Thinking. New York: Basic Books, 1971.
- Coleman, J. et al. Equality of Educational Opportunity. Washington, D.C.: U.S. Government Printing Office, 1966.
- Coleman, James S. "Methods and Results in the IEA Studies of Effects of School on Learning," Review of Educational Research, vol. 45, summer 1975.
- Collins, R. "Some Comparative Principles of Educational Stratification," Harvard Educational Review, vol. 47, no. 1, February 1977.
- Collins, R. The Credential Society. New York: Academic Press, 1979.
- Copperman, Paul. The Literacy Hoax. New York: William Morrow and Co., Inc., 1978.
- Cronbach, L. "Disciplined Inquiry," in Philosophy of Educational Research, ed. H. Broudy. New York: John Wiley & Sons, 1973.
- Cronbach, Lee J. "Beyond the Two Disciplines of Scientific Psychology," Evaluation Studies, ed. Gene V. Glass. Beverly Hills, Calif.: Sage Publications, 1976.
- de Lone, R. Small Futures. New York: Harcourt Brace Jovanovich, 1979.
- Dorn, E. Rules and Racial Equality. New Haven: Yale University Press, 1979.
- Duncan, B. and O. Duncan. "Minorities and the Process of Stratification," American Sociological Review, vol. 33, 1968.
- Dyer, H. "Some Thoughts About Future Studies," in On Equality of Educational Opportunity. New York: Random House, 1972.
- Fisher, D.L. Functional Literacy and the Schools. Washington, D.C.: National Institute of Education, 1978.
- Frazier, Nancy and Myra Sadker. Sexism in School and Society. New York: Harper & Row, 1973.

Freire, P. Pedagogy of the Oppressed. New York: Herder and Herder, 1972.

Functional Literacy, Basic Reading Performance, Brief Summary and Highlights. Denver, Colo.: National Assessment of Educational Progress, Education Commission of the States, 1976. ERIC no. ED 133 704. ISBN 0-89398-433-7.

Gadway, C. "An Exploratory Analysis of Two-Way Cell Performances on Selected Reading and Mathematics Exercises." Unpublished National Assessment of Educational Progress research paper, 1978.

Glass, Gene V. "Integrating Findings: The Meta Analysis of Research," in Review of Research in Education, ed. L. Shulman, Itasca, Peacock Publishers, 1977.

Guthrie, James W. et al. Schools and Inequality. Cambridge, Mass.: MIT Press, 1969.

Hacker, A. "Creating American Inequality," New York Review of Books, vol. 27, no. 4, March 20, 1980.

Hall, Budd. "Notes on Literacy Research: The State of the Art," Convergence, vol. 8, no. 4, 1975.

Harmon, David. "Illiteracy: An Overview," Harvard Educational Review, vol. 40, no. 2, 1970.

Harmon, David and C.S.J. Hunter. Adult Illiteracy in the United States: A Report to the Ford Foundation. New York: McGraw Hill, 1979.

Harnischfeger, A and D.E. Wiley. Achievement Test Score Decline: Do We Need To Worry? Chicago: CEMREL, December 1975.

Harris, Louis and Associates. Survival Literacy. Conducted for the National Reading Council. New York: Louis Harris and Associates, 1970.

Harvard Educational Review. Challenging the Myths: the Schools, the Blacks, and the Poor. Cambridge, Mass.: President and Fellows of Harvard College, 1971.

_____, Editorial Board. Equal Educational Opportunity. (An expanded version of the Winter 1968 special issue of the Harvard Educational Review.) Cambridge, Mass.:

Harvard University Press, 1969.

_____. Perspectives on Inequality, including articles by A.M. Rivlin, R. Edmonds, S. Michelson, L.C. Thurow, K.B. Clark, B. Duncan, J. Coleman and C. Jencks. Cambridge, Mass.: Harvard College, 1973.

_____. "Women and Education" (special issue), vol. 49, no. 4, November 1979; vol. 50, no. 1, February 1980.

Hawkins, D. The Science and Ethics of Equality. New York: Basic Books, 1977.

Hendricks, Walter A. The Mathematical Theory of Sampling. New Brunswick, N.J.: The Scarecrow Press, 1956.

Herman, Magdalen. Male-Female Achievement in Eight Learning Areas. Denver, Colo.: National Assessment of Educational Progress, Education Commission of the States, 1975. ERIC no. ED 117 133.

Hispanic Student Achievement in Five Learning Areas, 1971-75, Report BR-2, 1971-75 Assessments. Denver, Colo.: National Assessment of Educational Progress, Education Commission of the States, 1977. ERIC no. ED 138 414.

Hofstadter, R. Anti-Intellectualism in American Life. New York: Random House, 1963.

Jencks, C. et al. Inequality: A Reassessment of the Effects of Family and Schooling in America. New York: Basic Books, 1972.

Katz, M. Class, Bureaucracy and Schools: The Illusion of Educational Change in America. New York, 1975.

Kirsch, I. and J. Guthrie. "The Concept and Measurement of Functional Literacy," Reading Research Quarterly, vol. 8, no. 4, 1978.

Kish, Leslie and Martin R. Frankel. "Inference From Complex Samples," Journal of the Royal Statistical Society, 1974.

Knight, Sarah S. and Eugene Johnson. "Art Experience and Art Performance." Paper presented at the annual meeting of the American Educational Research Association, 1978.

- Labov, W. Language in the Inner City. Philadelphia: Philadelphia University Press, 1972.
- Labov, W. "The Logic of Nonstandard English," in Language and Poverty, ed. R. Williams. Chicago: Markham, 1970.
- Larson, Robert et al. "A Look at the Analysis of National Assessment Data," in Frontiers of Educational Measurement and Information Systems, ed. William C. Coffman. Boston: Houghton Mifflin Company, 1973.
- Larson, Robert C. "Technical Methods and General Trends in Education." Paper presented at the symposium "Public Knowledge of Science -- the NAEP," at the 1977 annual meeting of the American Association for the Advancement of Science.
- Larson, Robert C. and Donald T. Searls. "Adjusting Educational Survey Data," Proceedings of the Social Statistics Section, 1974. Paper presented at the American Statistical Association, 1974.
- Lasch, Christopher. The Culture of Narcissism. New York: Norton, 1979.
- Levin, H. "A New Model of School Effectiveness," in Do Teachers Make A Difference? Washington D.C.: U.S. Government Printing Office, 1970.
- Loban, W. Language Development: Kindergarten Through Grade Twelve, research report no. 18. Urbana, Ill.: National Council of Teachers of English, 1976.
- Loban, W. The Language of Elementary School Children. Urbana, Ill.: National Council of Teachers of English, 1963.
- Longstreet, W. Beyond Jencks: The Myth of Equal Schooling. Washington, D. C.: Association for Supervision and Curriculum Development, 1973.
- Lord, Frederic M. and Melvin R. Novick. Statistical Theory of Mental Test Scores. Reading, Mass.: Addison-Wesley, 1968.
- McLuhan, Marshall. Gutenberg Galaxy: The Making of Typographic Man. Toronto: University of Toronto Press, 1969.

- Mann, H. "The Twelfth Annual Report of the Board of Education," in Life and Works. Boston, 1891, vol. 4.
- Math Fundamentals, Report 04-MA-01, 1972-73 Assessment. Denver, Colo.: National Assessment of Educational Progress, Education Commission of the States, 1975. ERIC no. ED 102 029. ISBN 0-89398-126-5.
- Mayeske, G.W. et al. A Study of Achievement of Our Nation's Students. Washington, D.C.: U.S. Government Printing Office, 1973.
- Mayeske, G.W. et al. A Study of Our Nation's Schools. Washington, D.C.: U.S. Government Printing Office, 1972.
- Mayeske, G.W. et al. A Study of the Attitude Toward Life of Our Nation's Students. Washington, D.C.: U.S. Government Printing Office, 1973.
- Mead, Nancy A. "Assessing Listening Ability: Relationships With Verbal Ability and Racial/Ethnic Bias." Paper presented at the annual convention of the Speech Communication Association, November 1978.
- Mellon, J.C. National Assessment and the Teaching of English. Urbana, Ill.: National Council of Teachers of English, 1975.
- Mosteller, F. and D. Moynihan. On Equality of Educational Opportunity. New York: Random House, 1972.
- Mosteller, F. and J. Tukey. Data Analysis and Regression. Reading, Mass.: Addison-Wesley, 1977.
- Mullis, Ina. Educational Achievement and Sex Discrimination. Denver, Colo.: National Assessment of Educational Progress, Education Commission of the States, 1975.
- Mullis, Ina V.S. "Effects of Home and School on Learning Mathematics, Political Knowledge and Political Attitudes." Ph.D. dissertation, University of Colorado, Boulder, Colo., 1979.
- Murphy, Richard. Adult Functional Reading Study (PR 73-48). Princeton, N.J.: Educational Testing Service, 1973.

Nafziger, D. et al. Tests of Functional Adult Literacy. Portland: Northwest Regional Educational Laboratory, 1976.

National Health Survey. Literacy Among Youths 12-17 Years, United States. Washington, D. C.: U. S. Department of Health, Education and Welfare, series 11, no. 131, HE20.6209.

Noe, Michael. "Scientific Literacy and Support of Scientific Research," No. 08-S-51. Denver, Colo.: National Assessment of Educational Progress, Education Commission of the States, 1978.

Piaget, J. Language and Thought of the Child. New York: Meridan Books, 1955.

Reading Change, 1970-75: Summary Volume, Report 06-R-21, 1970-71 and 1974-75 Assessments. Denver, Colo.: National Assessment of Educational Progress, Education Commission of the States, 1978. ERIC no. ED 153 196. ISBN 0-89398-216-4.

Rosenbaum, J. Making Inequality: The Hidden Curriculum of High School Tracking. New York: John Wiley & Sons, 1976.

Roth, D. Language Use and School Performance. New York: Academic Press, 1974.

Sauls, Judith and Robert C. Larson. "Exploring National Assessment Data Using Singular Value Decomposition." Paper presented at the annual convention of the American Educational Research Association, 1975. ERIC no. ED 107 720.

Sauls, Judith M. and John Michael Kalk. Changes in Science Achievement of Black Students. Denver, Colo.: National Assessment of Educational Progress, Education Commission of the States, April 1976.

Science Achievement: Racial and Regional Trends, 1969-73, Report BRS-1, 1969-70 and 1972-73 Assessments. Denver, Colo.: National Assessment of Educational Progress, Education Commission of the States, 1976. ERIC no. ED 127 143. ISBN 0-89398-291-1.

Scribner, S. and M. Cole. "Cognitive Consequences of Formal and Informal Education," Science, vol. 182, 1973.

Scribner, S. and M. Cole. "Literacy Without Schooling: Testing for Intellectual Effects," Harvard Educational Review, vol. 48, November 1978.

Selected Essays and Letters, Report 10, 1969-70 Assessment. Denver, Colo.: National Assessment of Educational Progress, Education Commission of the States, 1972. ERIC no. ED 075 822. ISBN 0-89398-379-9.

Sewell, W. "Inequality of Opportunity for Higher Education," American Sociological Review. October 1971.

Sewell, W. and R. Hauser. Education, Occupation and Earnings. New York: Academic Press, 1975.

Stacey, Judith et al., eds. And Jill Came Tumbling After: Sexism in American Education. New York: Dell Publishing Co., 1974.

Sticht, T. et al. Project REALISTIC. Alexandria, Va.: Human Resources Research Organization, 1971.

Subcommittee on Elementary, Secondary and Vocational Education, Oversight Hearing on Mathematics Achievement, October 23, 1979.

Tesconi, Charles A. Jr. and Emanuel Hurwitz Jr. Education for Whom? The Question of Equal Educational Opportunity. New York: Dodd, Mead, 1974.

The Condition of Education, 1979 Edition. Washington, D.C.: U.S. Government Printing Office, 1979.

Thurow, L. Generating Inequality: Mechanisms of Distribution in the U.S. Economy. New York, 1975.

Tukey, J. Exploratory Data Analysis. Reading, Mass.: Addison-Wesley, 1977.

Tukey, J.W. "Conclusions Vs. Decisions," Technometrics, vol. 2, 1960.

Tukey, J.W. "Technique for Analysis of Groups." A personal memo to National Assessment staff and the Analysis Advisory Committee, 1970.

Vogt, Dorothee. Literacy Among Youths 12-17. Vital and Health Statistics, Series 11-131. Washington, D.C.: U.S. Government Printing Office, 1973.

Vygotsky, L.S. Language and Thought. Cambridge, Mass.: MIT Press, 1962.

Wainer, H. Review of J.W. Tukey's "Exploratory Data Analysis," Psychometrika, vol. 42, 1977.

Williams, Barbara I. and June Gilliard. "One More Time: NAEP and Blacks," part of the National Council of Social Studies report on the National Assessment of Educational Progress, Social Education, vol. 38, no. 5, May 1974.

Williams, Raymond. Culture & Society, 1780-1950. New York: Harper & Row, 1958.

Writing Mechanics, Report 8, 1969-70 Assessment. Denver, Colo.: National Assessment of Educational Progress, Education Commission of the States, 1972. ERIC no. ED 062 325. ISBN 0-89398-378-0.

Writing Mechanics, 1969-74, Report 05-W-01, 1973-74 Assessment. Denver, Colo.: National Assessment of Educational Progress, Education Commission of the States, 1975. ERIC no. ED 113 736. ISBN 0-89398-383-7.